

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA**

ELMAGIN CAPITAL LLC,

Plaintiff,

v.

**CHAO CHEN;
KARL PETTY;
ENTERGRID LLC;
ENTERGRID FUND I LLC**

Defendants.

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**CIVIL ACTION NO.:
2:20-cv-02576-TJS**

JOINT PRETRIAL ORDER PURSUANT TO LOCAL RULE 16.1

I. JURISDICTION

This is a suit by Plaintiff for (i) misappropriation of trade secrets pursuant to and in violation of the Defend Trade Secrets Act, 18 U.S.C. § 1836, et seq. (“DTSA”); (ii) misappropriation of trade secrets pursuant to and in violation of the Pennsylvania Uniform Trade Secrets Act, 12 Pa.C.S.A. §§ 5301 et seq. (“PUTSA”); and (iii) breach of contract. This Court has jurisdiction pursuant to 28 U.S.C. §§ 1331 and 1367 because Plaintiff asserts a claim for statutory misappropriation of trade secrets under the Defend Trade Case Secrets Act of 2016, 18 U.S.C. § 1836 et seq., and all other claims are related to the federal trade secret claims such that they form part of the same case or controversy.

II. FACTS

A. JOINT STATEMENT OF STIPULATED FACTS

1. Aside from the adequacy of consideration, the Parties do not contend that anything else in the Chen Membership Interest Purchase Agreement, the Chen Non-Disclosure and Non-Competition Agreement, or the Petty Consulting Agreement renders them unenforceable as a matter of law.
2. Chao Chen was represented by independent legal counsel in the negotiation and execution of the Membership Interest Purchase Agreement and the Non-Disclosure and Non-Compete Agreements that are the subject of the breach of contract claims against him in this case. Dep. of Chao Chen, Feb. 25, 2021 at 65:12-66:3
3. The parties agree that Elmagin's General Counsel and Chief Operating Officer, Steven Soles, on May 14, 2020, sent cease and desist letters to Entergrid, Chao Chen, and Karl Petty by FedEx and e-mail stating Elmagin's belief that Entergrid was using trade secrets of Elmagin without authorization. The parties also agree that each of the Defendants denies those allegations. PTX170; PTX171; Transcript of Pretrial Conference, April 12, 2022 (ECF 235) at 106:1-13. Such stipulation permits that Plaintiff need not present to the jury exhibit PTX170 or PTX171.
4. Defendants do not contest that Plaintiff exercised reasonable measures to maintain the confidentiality of the information Plaintiff asserts constitute its trade secrets in this case.
5. At the time of his deposition, Cristian Zarcu was unaware of a single publication discussing all of the steps in Elmagin's Breck strategy.
6. Plaintiff does not allege as a basis for its claims that Dr. Chen solicited any Elmagin employees to work for him in energy trading during the three (3) year non-solicitation period set forth in the agreements.

7. The Parties agree that:

- a. the content of the PDF document PTX195 is identical to the content of the PowerPoint document PTX194; and
- b. the content of the PDF document PTX215 is identical to the content of both the PowerPoint document PTX193 and the PDF document PTX196.
- c. Such stipulation permits that Plaintiff shall strike from its list exhibit PTX196.

8. Defendant Chao Chen, the founder of Entergrid, was among the founders of Elmagin in October 2014. Chen sold his interest in Elmagin to its remaining members, effective January 1, 2018, executing a Membership Interest Purchase and Release Agreement and a related Non-Disclosure And Non-Competition Agreement.

9. Chen founded defendants Entergrid, LLC and Entergrid Fund I, LLC, effective January 10, 2019.

10. By June 2019, Entergrid Fund I had begun trading FTRs in the MISO market. PTX023; 30(b)(6) Dep. of Entergrid (Petty), Feb. 11, 2021 at 202-205.

11. By August 2019, Entergrid Fund I had begun trading FTRs in the PJM market. PTX023; 30(b)(6) Dep. of Entergrid (Petty), Feb. 11, 2021 at 202-205.

12. Elmagin does not assert as a basis for its claims that Dr. Chen took any computer source code of Elmagin's trading strategies Breck, Faber or Chloe when he left Elmagin.

13. There is no dispute that Chen disclosed Entergrid's strategies to Petty. Memorandum Op. (ECF 94) at 17.

14. There is no dispute that Chen and Petty disclosed Entergrid's strategies to Entergrid's other employees. Memorandum Op. (ECF 94) at 17.

B. PLAINTIFF'S STATEMENTS OF FACT (WHICH DEFENDANTS DISPUTE)

1. The Chen Membership Interest Purchase and Release Agreement and related Non-Disclosure And Non-Competition Agreement, each effective January 1, 2018, together set out a one-year non-compete period and a perpetual prohibition on Chen's use or exploitation of the confidential information of Elmagin.
2. During his tenure at Elmagin, Chen, on behalf of Elmagin, engaged Defendant Karl Petty pursuant to a written Consulting Agreement, dated January 8, 2016, which included, *inter alia*, restrictions on the disclosure, use, or exploitation of confidential information of Elmagin. PTX014; Order (ECF 234).
3. By April 2019, Chen had begun to disclose to Petty detailed information relating to the trading strategies Chen was then developing for use by Entergrid. PTX015; 30(b)(6) Dep. of Entergrid (Petty), Feb. 11, 2021 at 127:7-128:15.
4. By December 2019, Entergrid Fund I had begun trading FTRs in the ERCOT market. PTX023; 30(b)(6) Dep. of Entergrid (Petty), Feb. 11, 2021 at 202-205.
5. By the close of 2020, Defendants had generated, since inception of their trading, more than \$1 Million in revenue from trading FTRs. PTX088; Dep. of Karl Petty, April 21, 2021 at 233:1-6.

6. Defendants do not contest that Elmagin's Breck, Faber, and Chloe trading strategies are confidential information of Plaintiff Elmagin. Dep. of Chao Chen, Feb. 25, 2021 at 82:10-83:2.
7. It is undisputed that Chen had access to Breck. Memorandum Op. (ECF 94) at 16.
8. No one in this case – either on behalf of Plaintiff or any Defendant – has found one document that discloses the entirety of any one of Elmagin's trading strategies, which Plaintiff contends comprise its trade secrets at issue in this case. Transcript of Motions Hearing (ECF 173) at 86:16-21; Transcript of Motions Hearing (ECF 173) at 87:9-13; Transcript of Pretrial Conference, April 12, 2022 (ECF 235) at 52:18-20.
9. At the time of his deposition, Cristian Zarcu was unaware of a single reference discussing all of the steps in Elmagin's Faber strategy. Dep. of Cristian Zarcu, April 19, 2021 at 52:17-20.
10. At the time of his deposition, Cristian Zarcu was unaware of a single reference discussing all of the steps in Elmagin's Chloe strategy. Dep. of Cristian Zarcu, April 19, 2021 at 52:21-24.
11. There is no dispute that Chen and Petty disclosed Entergrid's strategies to Entergrid's other employees and contractors. Memorandum Op. (ECF 94) at 17.

C. DEFENDANTS' STATEMENTS OF FACT (WHICH PLAINTIFF DISPUTES)

1. All parties agree that the individual components of the strategy are found in numerous publications and websites and are well known tools of the trade of algorithmic and power traders.

2. Elmagin's fully specified in detail trading strategies, including all input and output parameters, and intervening computational and other steps, are trade secrets. Elmagin has not yet provided a fully specified in detail trading strategies, including all input and output parameters and intervening computational and other steps. At trial, it is Elmagin's burden to enter into evidence fully specified in detail trading strategies, including all input and output parameters and intervening computational and other steps of the trading strategies that it claims to have been taken.
3. The parties agree that Dr. Chen did not solicit Elmagin investors to invest with him in energy trading during his three (3) year non-solicitation period.
4. The parties agree that Dr. Chen was permitted to power trade in any market after his non-compete agreement ended January 1, 2019.
5. The parties agree that Dr. Chen told Elmagin in early 2019 that he would be getting back into power trading starting in 2019.
6. The parties agree that the source code is the most complete and accurate description of their respective trading strategies. [R. Gates Dep. at 60:16-61:4]
7. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]

8. [REDACTED]

III. DAMAGES AND OTHER RELIEF

A. Plaintiff's Statement of Damages

Plaintiff seeks all damages and attorneys' fees available under the Defend Trade Secrets Act, 18 U.S.C. § 1836, *et seq* (the "DTSA"), the Pennsylvania Uniform Trade Secrets Act, 12 Pa.C.S.A. §§ 5301 *et seq*. ("PA UTSA"), and for breach of contract under Pennsylvania law. Until April 12, 2022, Plaintiff had not received updated financial statements from Defendants since March 16, 2021. Defendants have produced supplemental financial and bid information between April 12, 2022, and April 16, 2022. Therefore, Plaintiff's valuation of damages below is based on the financials it had received disclosing information through January 31, 2021. Neither the 2021, nor year-to-date 2022 financial disclosures of Defendants provides inception-to-date figures, nor do these figures attribute revenue to individual trading strategies. Plaintiff is unable to provide a full damages calculation at this time and has therefore requested an accounting. Based on

Defendants' financial information as provided, Plaintiff seeks the following itemized *estimated* damages and attorneys' fees on its claims asserted in its Complaint (ECF 1):

Monetary Damages	The unjust enrichment of Defendants through the date of judgment, to be determined by an accounting of the trading revenues of Defendants. On information and belief, based upon the stated "Total Trading and Other Income" in Defendants' recently-received financials, such monetary damages, as of February 2022, exceeded \$6,362,933. Defendants have provided supplementation to their financial disclosures only within the last week (beginning late night April 12, 2022). Such supplementation does not permit a full determination of the revenues of Defendants attributable individual trading strategies. Plaintiff therefore continues its request for supplementation and an accounting.
Exemplary Damages	An amount equal to two times the Monetary Damages set forth above, to be determined by an accounting of the trading revenues of Defendants. On information and belief such exemplary damages amount, as of February 2022, exceeded \$12,750,866. In view of Defendants' recent, but commingled supplementation, Plaintiff continues its request for supplementation and an accounting.
Attorneys' Fees	Plaintiff's attorneys' fees, which will be itemized to the Court within 20 days of entry of Final Judgment in the case
Costs.....	Plaintiff's costs and expenses which will be itemized to the Court within 20 days of entry of Final Judgment in the case

- A. In order to determine the actual unjust enrichment of Defendants to which Plaintiff is entitled, Plaintiff is entitled to an accounting of Defendant's revenue attributable to trading using the trade secrets of Elmagin and strategies derived therefrom.
- B. In addition to the damages and attorneys' fees set forth above, Plaintiff seeks the following additional relief:
- i. An order enjoining each Defendant from disclosing or using any trade secrets or other confidential information of Elmagin, including but not limited to using or disclosing methods, information, or strategies derived therefrom;
 - ii. An order requiring each Defendant to identify to Elmagin each third party to which any Defendant disclosed Elmagin's trade secrets or other confidential information or any methods, information, or strategies derived therefrom, and the nature of such disclosure;
 - iii. An order enjoining Dr. Chao Chen from directly or indirectly using, exploiting, publishing, disclosing, revealing, providing, making known, or otherwise making available in any manner whatsoever to any person or entity the Confidential Information of Elmagin as defined by Paragraph 2(a) of the Nondisclosure and Noncompetition Agreement, dated January 1, 2018, by and between Richard J. Gates, Kevin J. Gates, Chao Chen, and Elmagin Capital, LLC;
 - iv. An order enjoining Dr. Karl Petty from directly or indirectly using, exploiting, publishing, disclosing, revealing, providing, making known, or otherwise making available in any manner whatsoever to any person or entity the Confidential Information of Elmagin as defined by Paragraph 5(a) of the Petty

Consulting Agreement, dated January 8, 2016, by and between Karl Petty and Elmagin Capital, LLC;

- v. An order requiring Defendants to account for all revenue from trading in wholesale energy markets within 20 days of entry of final judgment in the case;
- vi. An order requiring Defendants to pay to Plaintiff monetary damages and exemplary damages as set forth above; and
- vii. An order requiring Defendants to pay to Plaintiff the reasonable attorneys' fees and costs of Plaintiff as set forth above.

B. Defendants' Statement of Damages

Defendants request reasonable attorney's fees pursuant to 18 U.S.C. § 1836(b)(3)(D) and 12 Pa. C.S. § 5305(1). Plaintiff's assertion of trade secrets was made in bad faith. Plaintiff has been unwilling and/or unable to define its alleged trade secrets with the requisite specificity at any point during this litigation, and has likewise been unwilling and/or unable to delineate its alleged trade secrets from what is generally known to or readily ascertainable by algorithmic traders in the wholesale energy markets.

IV. LEGAL ISSUES

A. LEGAL ISSUES UPON WHICH THE COURT HAS INDICATED IT WILL RULE

1. The admissibility, in connection with the testimony of Matthew Yuros, of Plaintiff's trial exhibits PTX193 and PTX215, offered as analyses of the bids of Defendants in FTR markets. The Court has stated that it will rule on this issue the evening before or the

morning of the testimony of Mr. Yuros. Transcript of Pretrial Conference, April 12, 2022 (ECF 235) at 119:2-13.

2. The Court has received letter submissions from the parties on the issue of the availability of, and proposed procedures for, an accounting of Defendants' profits in connection with Plaintiff's prayer for relief in the form of unjust enrichment. (Plaintiff at ECF 226; Defendants at ECF 229).
3. The Court has received Plaintiff's Motion to Exclude the Public and Press from Trial (ECF 208) and letter dated April 15, 2022 (ECF 225), stating Plaintiff's "Proposed Scope of Limited Closure." The Court has provided Defendants until Tuesday, April 19, 2022, to respond.

B. LEGAL ISSUES UPON WHICH THE COURT HAS RULED

1. The Non-Disclosure and Non-Competition Agreement, Membership Interest Purchase Agreement, and Consulting Agreement are valid and enforceable, except for any potential lack of consideration. Whether the agreements lack consideration is a question of fact for the jury. Order (ECF 234)
2. Plaintiff's exhibits 216-218 and 269-289 may be admitted if Plaintiff redacts any mention of the S&P 500 (including any lines or charts on graphs). witnesses may not compare the trading strategies' performance to the S&P 500's. Order (ECF 233)
3. The Court has ruled that Elmagin has sufficiently identified its trading strategies. Although Elmagin provides only written summaries of Breck and Faber in its summary

judgment motion, its descriptions, together with voluminous exhibits, including emails, notes, and PowerPoint presentations discussing the strategies and how they are constructed, sufficiently identify its strategies. It is not necessary to provide the actual lines of computer code implementing the algorithms. Algorithms can be expressed in a variety of ways, such as in prose, code, or a combination of both. The code is simply the translation of the written instructions into a language the computer can understand. Memorandum Op. (ECF 94) at 8.

4. Elmagin's descriptions of its trading strategies provide a reasonable degree of precision and specificity permitting the jury to consider whether Elmagin's trading strategies qualify as trade secrets under DTSA and PUTSA. Memorandum Op. (ECF 94) at 8.
5. The accuracy of Elmagin's descriptions is a jury question. Memorandum Op. (ECF 94) at 8, n. 33.
6. A combination of different elements may constitute a trade secret, even if each element is otherwise generally known or readily ascertainable, as long as the combination is unique and offers a competitive advantage. Memorandum Op. (ECF 94) at 10.
7. [W]hether Elmagin's strategies are unique combinations of elements is for the jury to determine. Memorandum Op. (ECF 94) at 10.
8. Confidential business information is not a trade secret if it can be easily or readily obtained, without great difficulty, through some independent source other than the trade secret holder. Memorandum Op. (ECF 94) at 11.

9. The Court has ruled that The Third Circuit has interpreted “use” to mean any exploitation of the trade secret that is likely to result in injury to the trade secret owner or enrichment to the defendant. The defendant may misappropriate the plaintiff’s trade secrets without replicating the plaintiff’s product. Replication is one, but not the only, way to use a trade secret. Employing the trade secret. . .or relying on the trade secret to assist or accelerate research or development. . .constitute use. Therefore, using the elements or building blocks of a plaintiff’s trade secret to develop a competing product constitutes use in the misappropriation context. Memorandum Op. (ECF 94) at 13.
10. To demonstrate misappropriation of a trade secret a plaintiff may rely on circumstantial evidence, such as proof that the defendants had access to its trade secret material and that there are similarities between its products and the defendant’s products. Memorandum Op. (ECF 94) at 13-14.
11. To determine if there has been a misappropriation here, a jury must consider the competing evidence, examine the strategies side-by-side, and determine if they are similar enough to infer the defendants used Elmagin’s strategies in researching and developing their strategies. Memorandum Op. (ECF 94) at 15.
12. A jury must determine whether Elmagin’s strategies are generally known or readily ascertainable, whether they derive independent economic value from being kept secret, whether the parties’ strategies are substantially similar, and whether the defendants had access to Elmagin’s strategies. Memorandum Op. (ECF 94) at 17.

13. The Pennsylvania Supreme Court has frequently held that enforcement of restrictive covenants may be limited to the portions reasonably necessary to protect the employer. Thus, these covenants [in the three agreements in this case] are enforceable to the extent they protect an employer. Thus, these covenants are enforceable to the extent they protect Elmagin's trading strategies and any other confidential information related to the strategies. Memorandum Op. (ECF 94) at 20.
14. Plaintiff's Expert S. Craig Pirrong may not testify or opine 1) that Plaintiff's trading strategies outperformed the S&P 500, 2) that Plaintiff's trading strategies "have demonstrable value"), and 3) whether the trading strategies constitute trade secrets. Order (ECF 93) at 1.
15. Defendants are precluded from introducing, either directly or indirectly, expert witness Dr. Craig Pirrong's social media or internet blog posts identified in Defendants' Trial Exhibits X-023 through X-032 and X-312 through X-335, with the exception of the two emails relating to energy markets. Order (ECF 190) at 1.
16. The Court has ruled that Roger Chiang may not testify how the plaintiff's Breck and Faber trading strategies were developed or the elements of plaintiff's trading strategies used prior to January 1, 2018. Order (ECF 193) at 1.
17. Defendants' objections to Plaintiff's email exhibits, as set forth in Defendants' Motion In Limine To Exclude Plaintiffs Email Exhibits, (ECF 106), were sustained as to PTX018, PTX068, PTX069, PTX070, PTX072, and PTX111 for the portions not authored by Dr. Chen. Defendants' objections to Plaintiff's email exhibits were

overruled as to PTX053; PTX054; PTX058; PTX060; PTX061; PTX078; PTX079; PTX080; PTX100; PTX101; PTX102; PTX112; PTX126; PTX127; PTX136; PTX137; PTX139; PTX140; PTX141; PTX142; PTX154; PTX166; PTX198; PTX200; PTX202; PTX204; PTX207; PTX208; PTX210; PTX211; PTX212; PTX213; PTX221; PTX262; PTX263; PTX264; PTX265; PTX295; PTX297; PTX304; PTX305; PTX308; PTX309; PTX310; PTX311; and PTX312. Order (ECF194) at 2.

18. Fact witnesses will be sequestered, sequestration does not apply to experts, and Elmagin may designate any officer or employee as its representative at trial whether that representative is or is not a witness at trial. Order (ECF 195) at 1. The parties agree that sequestration also does not apply to Dr. Chen or Dr. Petty since they have been named individually in this matter.

19. Defendants' motion to exclude Plaintiff's demonstratives was denied. Order (ECF 196) at 1.

20. Plaintiff may not call Defendants' experts Cristian Zarcu and W. Anthony Mason as expert witnesses in Plaintiff's case-in-chief. Order (ECF 197) at 1.

21. Plaintiff may call defense fact witnesses in plaintiff's case-in-chief; and, if plaintiff calls any defense fact witness, the defendants may examine the witness as if called by the defense. Order (ECF 198) at 1.

22. While the rest of attorney colloquy from depositions is not admissible, the following designations are admissible: Chao Chen, Rule 30(b)(6) Deposition, 53:6–14, Feb. 15,

2021; and Chao Chen, Rule 30(b)(6) Deposition, 119:2–4, Feb. 15, 2021. Order (ECF 199) at 1.

23. Matthew Yuros may testify regarding his assembling trading data and the results [for the Yuros study]; and Mr. Yuros may not opine that the results show that the defendants were using the plaintiff's trading strategies. Order (ECF 200) at 1.

24. Roger Chiang may not testify how the plaintiff's Breck and Faber trading strategies were developed or the elements of Plaintiff's trading strategies used prior to January 1, 2018. (ECF 193 re Motion in Limine at ECF 105).

25. Dr. Garibotti may opine that Dr. Pirrong's methodology was unreliable and why, but she may not offer her own methodology. Dr. Garibotti may testify regarding the test used by Dr. Pirrong for comparison and analysis of the parties' FTR trading strategies and his interpretation and reliance upon bid analysis information of the parties. Dr. Garibotti may not opine on the economic value of either party's trading strategies. Dr. Garibotti may not testify as to the structure, operation, and mechanisms of financial transmission rights and the FTR markets. Order (ECF 203) at 1.

26. The Court has agreed to seal certain verbiage in footnote 33 on page 8 of its Memorandum Opinion dated August 17, 2021 (ECF 94). Order (ECF 224).

C. NEW LEGAL ISSUES REQUIRING ATTENTION OF THE COURT

1. Plaintiff contends that the Court's use of the phrase "substantially similar" in its Memorandum Opinion on Summary Judgment (ECF 094 at 14, 20) is error as not consistent with the precedent on circumstantial evidence of misappropriation under the DTSA or the

PUTSA. Plaintiff asserts that inclusion of the word “substantially” misstates the standard as discussed in *Oakwood Labs. LLC v. Thanoo*, 999 F.3d 892 (3d Cir. 2021), which states “[O]nce evidence of access and similarity is proffered, it is ‘entirely reasonable for [the jury] to infer that [defendant] used [plaintiff’s] trade secret.’” *Id.* at 915 (quoting *Stratienko v. Cordis Corp.*, 429 F.3d 592, 600 (6th Cir. 2005))(alterations in original).

2. Defendants contend that it is improper for Plaintiff to raise issues of error in the Court’s summary judgment opinion at this time. Any motion for reconsideration should have already been brought, this Court has indicated it will not revisit prior rulings and, thus, this ruling is the law of the case. Should the Court wish to consider this Issue No. C1, Defendants respectfully request (1) an opportunity to be heard on this issue, as the language “substantial similarity” is entirely consistent with precedent; and (2) an opportunity to raise other issues that it believes was wrongly decided in the Court’s summary judgment opinion, Daubert order and motions *in limine*.

3. The Court has received Defendants’ letter submission of April 14, 2022, regarding “Defendants’ Use of Deposition Designations at Trial.” (ECF 223). Therein, “Defendants contend [Matthew Yuros] is a managing agent of Elmagin.” Plaintiff disagrees that Mr. Yuros is a “managing agent” within the definition of Fed. R. Civ. P. 32. The parties have conferred on the matter but have not resolved their disagreement on the issue.

4. Defendants raise the following new issue occasioned by Counsel for Plaintiff’s representations at the Final Pretrial Conference. Plaintiff disputes Defendants’ characterization of the facts and discovery recited herein.

In the Court’s opinion on the motions for summary judgment, the Court held that Elmagin’s “written summaries of Breck and Faber in its summary judgment motion, its descriptions, together with voluminous exhibits, including emails, notes, and PowerPoint presentations discussing the strategies and how they are constructed, sufficiently identify its strategies.” (ECF 94 at 8.). To date, Elmagin has not provided any descriptions of Chloe in any pleading nor in Dr. Pirrong’s expert report, nor has there been any testimony, pleading or expert report suggesting that any of Entergrid’s strategies evidence misappropriation of Chloe.

In the Final Pretrial Conference on April 12, 2022, Elmagin indicated that, *inter alia*, they would provide testimony as to its strategy Chloe (Tr. at 17) and, further, that they would provide “very detailed” testimony about all the strategies. For example, Counsel for Plaintiff stated: “Dr. Xu’s testimony is going to be very detailed. He will be doing a significant amount of explaining the trading strategies, the research of the trading strategies, and the inner workings of all of them.” (Tr. at 12.)

Defendants submit that Elmagin should be confined to (1) pursuing only the alleged misappropriation of Breck and Faber; and (2) the descriptions of Breck and Faber provided in its summary judgment motion and the referenced documents and testimony therein. Anything else would be to subvert the discovery process, lead to “trial by ambush,” and is forbidden under, *inter alia*, Fed. R. Civ. P. 37(c).

V. WITNESSES

A. PLAINTIFF’S FACT WITNESSES

A. Kevin Gates

Kevin Gates, is a member of Elmagin Capital, LLC and its President. Mr. Gates is expected to testify as to the formation of Elmagin, the creation and development of Elmagin’s “Breck,”

“Faber,” and “Chloe” strategies, Elmagin’s financial statements and other financial information, business relations with Defendant Chen, the Chao Chen Membership Interest Purchase Agreement and Nondisclosure and Noncompetition Agreement and negotiations leading to the execution thereof, the purchase of Chao Chen’s membership interests in Elmagin, formation of the Karl Petty Consulting Agreement, and Elmagin’s measures to keep its trading strategies confidential.

B. Guidong Zhu

Guidong Zhu, Ph.D., is an employee of Elmagin Capital, LLC. Dr. Zhu is expected to testify as to the creation, development, and details of Elmagin’s “Breck,” “Faber,” and “Chloe” strategies, Dr. Chen’s participation in the development of Elmagin’s trading strategies, and Elmagin’s use in wholesale electricity market auctions of its trading strategies.

C. Matthew Yuros

Matthew Yuros, is an employee of Elmagin Capital, LLC. Mr. Yuros is expected to testify as to the trading activities of Defendants in wholesale electricity market auctions, and bids made and awarded using Defendants’ trading strategies.

D. Chao Chen

Chao Chen, Ph.D., is the founding member of Entergrid LLC, and an investor in Entergrid Fund I, LLC. Dr. Chen is a former member of Elmagin Capital, LLC, and the former President of Elmagin Capital, LLC. Dr. Chen is expected to testify as to the formation of Elmagin, the creation and development of Elmagin’s “Breck,” “Faber,” and “Chloe” strategies, Elmagin’s financial statements and other financial information, negotiations leading up to Dr. Chen’s Membership Interest Purchase Agreement and Nondisclosure and Noncompetition Agreement, the sale of Dr. Chen’s membership interests in Elmagin, the formation of Entergrid LLC and

Entergrid Fund I LLC, communications with Karl Petty, access to Elmagin's confidential information, creation, development, and details of Entergrid's trading strategies, employees of Entergrid LLC and their access to and use of information relating to trading strategies and participation in development of those strategies, bids made and awarded with Entergrid's trading strategies, operation of Entergrid LLC and Entergrid Fund I LLC, and Entergrid's financials.

**** Plaintiff notes its intent to call its expert witness, Dr. S. Craig Pirrong, at this time. ****

E. Steven Soles [If necessary]

Steve Soles, is an employee of Elmagin Capital, LLC and its Chief Operating Officer and General Counsel. Mr. Soles is expected to testify as to the operations and dealings of Elmagin with respect to its employees and contractors, Elmagin's measures to keep its trading strategies confidential, the Chao Chen Membership Interest Purchase Agreement and Nondisclosure and Noncompetition Agreement and negotiations leading to the execution thereof, the purchase of Chao Chen's membership interests in Elmagin, and formation of the Karl Petty Consulting Agreement.

F. Karl Petty

Karl Petty, Ph.D., current member of Entergrid LLC, investor in Entergrid Fund I LLC, and former contractor of Elmagin Capital, LLC. Dr. Petty is expected to testify as to his work for Elmagin, access to Elmagin's confidential information, communications with Chao Chen, the structure and operation of, and Dr. Petty's ownership of/investment in, Entergrid LLC and Entergrid Fund I LLC, Entergrid's financials, creation, development, and details of Entergrid's

trading strategies, employees of Entergrid LLC and their access to and use of information relating to trading strategies and participation in development of those strategies, and bids made and awarded with Entergrid's trading strategies.

G. Richard Gates

Richard Gates, is a member of Elmagin Capital, LLC and its Vice President. Mr. Gates is expected to testify as to the formation of Elmagin, the creation and development of Elmagin's "Breck," "Faber," and "Chloe" strategies, Elmagin's financial statements and other financial information, business relations with Defendant Chen, the Chao Chen Membership Interest Purchase Agreement and Nondisclosure and Noncompetition Agreement and negotiations leading to the execution thereof, the purchase of Chao Chen's membership interests in Elmagin, formation of the Karl Petty Consulting Agreement, and Elmagin's measures to keep its trading strategies confidential.

H. Roger Chiang [If necessary]

Roger Chiang, is a member of Elmagin Capital, LLC and its Vice President. Mr. Chiang is expected to testify as to the investors of the funds of Elmagin, trading strategies of Elmagin and the development of those strategies, bidding activity of Elmagin in wholesale electricity market auctions using Elmagin's trading strategies, operation of Elmagin, and Elmagin's financials.

B. PLAINTIFF'S EXPERT WITNESS

A. Dr. S. Craig Pirrong, Ph.D.

Plaintiff expects to call its expert witness as Plaintiff's fifth witness, following the testimony of Defendant Chao Chen. Plaintiff respectfully requests, based upon the availability of Dr. Pirrong, that such examination occur on Monday, May 2, 2022.

Dr. Stephen Craig Pirrong, Ph.D. is a professor of commodity trading and finance as well as an energy market analyst. He has studied electricity markets for almost twenty-five years. Dr. Pirrong created the Pirrong-Jermakyan electricity derivatives pricing model and currently teaches at the Gutierrez Energy Management Institute at The Bauer College of Business of the University of Houston, the University of Geneva, and the Lucerne University of Applied Sciences and Arts of Switzerland. He has written extensively and lectured throughout the world about the roles of markets and central control in electricity, and about the economics of electricity market manipulation. He has also consulted on pricing and trading issues with utilities and electricity traders.

He is expected to testify to and explain wholesale energy markets, financial transmission rights, and the trading strategies of Elmagin and Defendants. Dr. Pirrong is expected to testify to the significant research and experimentation required to develop energy trading strategies such as Elmagin's as well as the relatedness and functional identity of the Elmagin trading strategies and the trading strategies of Entergrid LLC (hereinafter "Entergrid" or "Defendant"). He will also compare the trading strategies of Defendants with those of Plaintiff. He will also testify that he is unaware of any publicly known trading strategies having a combination of the steps and functionality of the trading strategies of Elmagin's strategies. He will also testify to the impossibility of reverse engineering such trading strategies based on publicly available information.

C. DEFENDANTS' FACT WITNESSES

If Plaintiff calls any of the following individuals, Defendants will conduct direct examination together with cross-examination. Plaintiff indicates that it will call most, if not all,

of these witnesses. If Plaintiff calls none of these individuals, Defendants will present them in this order

B. Chao Chen

Dr. Chen is expected to provide testimony regarding

- His education, background, and career,
- Entergrid's independent creation of Entergrid's trading strategies,
- His compliance at all times with his contractual obligations to Elmagin,
- His recollections of how Elmagin's trading strategies operated at the time he left Elmagin,
- How Entergrid's trading strategies differ from Elmagin's,
- Defendants' non-use of any trade secrets or confidential information that Dr. Chen knew or should have known to have been proprietary to Elmagin,
- Whether the elements of algorithmic trading strategies are elementary and widely used,
- His separation from Elmagin,
- Elmagin's value,
- The project he asked Dr. Petty to work on for Elmagin
- The extent of Elmagin confidential information to which Dr. Petty was ever exposed,
- his background knowledge as an experienced algorithmic trader in wholesale energy markets at the time he began independently developing Entergrid's trading strategies.

C. Karl Petty

Dr. Petty is expected to provide testimony regarding

- His education, background, and career,
- Entergrid's independent creation of Entergrid's trading strategies,
- The project that he was asked to work on for Elmagin and what tasks, if any, he did
- The limited amount of largely unrelated Elmagin confidential information to which he briefly had access,
- That he spent only approximately five hours of time reviewing Elmagin's information in 2016, did not invoice Elmagin for that time and received no payment for that time,
- His compliance at all times with his contractual obligations to Elmagin, and
- Defendants' non-use of any trade secrets or confidential information that Dr. Petty knew or should have known to have been proprietary to Elmagin.

D. Jay Tian

Mr. Tian is expected to provide testimony, by designation, regarding

- His background and career, and
- Entergrid's trading strategies and their development.

E. Richard Gates

If Plaintiff does not call Richard Gates or if Plaintiff does call him but the following areas are not within the scope of cross-examination, Defendants may call Mr. Gates to testify as a hostile witness regarding:

- Elmagin's trading strategies and their elements,
- Elmagin's trading results,

- What Elmagin considers to be its trade secrets,
- His education, background, and career,
- TFS's formation, business and history,
- Elmagin's formation, business and history,
- Elmagin's management organization and philosophy,
- The relationship between Elmagin and TFS,
- Dr. Chen's career at Elmagin and TFS,
- The knowledge, skills and experience that Dr. Chen brought with him to Elmagin/TFS,
- TFS's technical sophistication prior to Dr. Chen's joining TFS,
- Dr. Chen's impact on Elmagin/TFS's technical sophistication and capabilities,
- The status of Elmagin's trading strategies at the time of Dr. Chen's departure,
- His and Elmagin's lack of familiarity with algorithmic trading outside the confines of Elmagin/TFS,
- His lack of knowledge concerning Elmagin's trading strategies,
- Elmagin's emphasis on confidentiality as to all business matters,
- Dr. Chen's departure from Elmagin, including negotiations with Dr. Chen and requiring Dr. Chen to remain with Elmagin for an additional year in exchange for a one year non-compete,
- Elmagin's enforcement of the non-compete clause during its one-year term,
- The value of Elmagin and its funds,
- Elmagin's funds under management and their origins,

- His understanding of the Elmagin's (and his) agreements with Dr. Chen and Dr. Petty, and
- Elmagin's non-use of Dr. Petty's services.

F. Matt Yuros

If Plaintiff does not call Matt Yuros or if Plaintiff does call him but the following areas are not within the scope of cross-examination, Defendants may call Mr. Yuros to testify as a hostile witness regarding:

- Elmagin's trading strategies and their elements,
- Elmagin's trading results,
- What Elmagin considers to be its trade secrets,
- His education, background, and career,
- His experience with algorithmic trading prior to joining Elmagin/TFS,
- Whether the elements of trading strategies are elementary and widely used,
- His evaluations of Elmagin's trading strategies before, at and after the time of Dr. Chen's departure,
- His investigation of Entergrid's trading strategies, including its originations and his motivations,
- His analysis purportedly comparing the results of Entergrid's trading strategies to Elmagin's trading strategies

G. Roger Chiang

If Plaintiff does not call Roger Chiang or if Plaintiff does call him but the following areas are not within the scope of cross-examination, Defendants may call Mr. Chiang to testify as a hostile witness regarding:

- Elmagin's trading strategies and their elements,
- Elmagin's trading results,
- What Elmagin considers to be its trade secrets,
- His education, background, and career,
- His experience with algorithmic trading prior to joining Elmagin,
- Whether the elements of trading strategies are elementary and widely used,
- The level of knowledge required to replicate Elmagin's trading strategies and his inability to recreate Elmagin's trading strategies based on Elmagin's evidentiary presentation, and
- The status of Elmagin's trading strategies at the time of Dr. Chen's departure from Elmagin.

H. Guidong Zhu

If Plaintiff does not call Guidong Zhu or if Plaintiff does call him but the following areas are not within the scope of cross-examination, Defendants may call Mr. Zhu to testify as a hostile witness regarding:

- Elmagin's trading strategies and their elements,
- Elmagin's trading results,
- What Elmagin considers to be its trade secrets,
- His education, background, and career,
- The development of Faber and his and Dr. Chen's participation therein,
- The evolution of Faber before and after Dr. Chen's departure
- Availability of data concerning electric transmission to market participants,
- Availability of models and modelling software to market participants,

- Whether techniques used in Elmagin's trading strategies are elementary and widely used.

I. Kevin Gates

If Plaintiff does not call Kevin Gates or if Plaintiff does call him but the following areas are not within the scope of cross-examination, Defendants may call Mr. Gates to testify as a hostile witness regarding

- Elmagin's trading strategies and their elements,
- Elmagin's trading results,
- What Elmagin considers to be its trade secrets,
- His education, background, and career,
- TFS's formation, business and history,
- Elmagin's formation, business and history,
- Elmagin's management organization and philosophy,
- The relationship between Elmagin and TFS,
- Dr. Chen's career at Elmagin and TFS,
- Dr. Chen's departure from Elmagin,
- The knowledge, skills and experience that Dr. Chen brought with him to Elmagin/TFS,
- TFS's technical sophistication prior to Dr. Chen's joining TFS,
- Dr. Chen's impact on Elmagin/TFS's technical sophistication and capabilities,
- The status of Elmagin's trading strategies at the time of Dr. Chen's departure,
- His and Elmagin's lack of familiarity with algorithmic trading outside the confines of Elmagin/TFS,

- His lack of knowledge concerning Elmagin's trading strategies,
- Elmagin's emphasis on confidentiality as to all business matters,
- Dr. Chen's departure from Elmagin, including negotiations with Dr. Chen and requiring Dr. Chen to remain with Elmagin for an additional year in exchange for a one year non-compete,
- Elmagin's enforcement of the non-compete clause during its one-year term,
- The value of Elmagin and its funds,
- Elmagin's funds under management and their origins,
- Elmagin's non-use of Dr. Petty's services,
- His understanding of the Elmagin's (and his) agreements with Dr. Chen and Dr. Petty,
- His understanding that Dr. Chen was allowed to use all the elements identified in Plaintiff's interrogatory answers.

D. DEFENDANTS' EXPERT WITNESSES

A. Cristian Zarcu

Cristian Zarcu more than twenty years' experience in algorithmic trading. In 1995, he began his career as a trader at Salomon Brothers, where he was responsible for creating quantitative portfolio as well as management tools to build client portfolios. In 2000, he created Commerzbank's first program trading offering, and integrated it within existing trading and compliance/reporting infrastructure. In 2001, Mr. Zarcu moved to Bank of America Securities as a managing director, where he headed algorithmic trading. In 2004, he moved to a managing director position at Wachovia (now Wells Fargo), heading up automated trading. In 2009, he again moved to a similar position, this time at Lazard Capital Markets, where he was hired to help them

revamp their trading technology and also build an electronic trading business for them with execution algorithms, real time analytics, explore some proprietary trading techniques and algorithms.

Since 2013, he has worked with a partner in a consulting firm named TradeDynamix LLC, which provides both algorithmic trading software and algorithmic trading design services to clients, including securities brokers, dealers, regulators, and exchanges. While Mr. Zarcu himself has never traded in wholesale electricity, at his current firm he has supported clients in the development of strategies for trading financial transmission rights in some three to five engagements, worked with clients in exploring FTR trading, and assisted clients in developing algorithmic trading strategies for FTRs. Moreover, Mr. Zarcu works with algorithmic FTR trading related to backtesting pricing structures for those algorithms, working with precisely the same types of data that he analyzed in his report when assessing whether there was overlap in Elmagin's and Entergy's FTR trading.

Mr. Zarcu is expected to provide expert testimony concerning his opinions that:

- Entergy and Elmagin each trade in various wholesale electricity markets, including those run by the PJM Interconnection and the Midcontinent Independent System Operator.
- Algorithmic trading is “the trading of securities based strictly on the buy/sell decisions of computer algorithms.” Trading algorithms are defined sets of instructions that allow traders to place trades into the marketplace, typically designed based on evaluating the performance of a proposed algorithm on historical data. Most trading algorithms draw their inputs from a broad range of historical information, including historical trade volume, average trade size, standard deviation of trade size, and volatility of prices or returns.
- Details matter in algorithm implementation. Algorithmic trading strategies can and do exist that are all based on the same principle but differ in their implementation. Mr. Zarcu has designed and implemented three different algorithmic trading platforms, with very similar offerings, built on the same fundamentals of trading. Yet the actual algorithms were different between the three platforms.

- Some proprietary algorithms are so-called “market-making” strategies and operate by quoting a buy and sell price for an asset, increasing liquidity in the market. Market-making strategies do not make a directional bet on where prices will move. Other proprietary algorithms are based on directional bets on how prices will move, such as trend-following strategies or mean reversion strategies. Techniques for portfolio construction based on asset volatility are widely used across all asset types.
- Algorithmic trading in FTRs can be understood by applying general principles of algorithmic trading. Applying these principles, any financial trader that wants to participate in an FTR auction must decide which FTRs to bid for, how much to demand, and what price to submit. After deciding what auction to participate in and what overall set of FTRs to bid for, an algorithmic trader will base its choice of which specific FTRs (in the overall set) to bid for, what price to submit, and what quantity to demand based partly or completely on algorithms.
- General overviews of the at-issue strategies, based on interrogatories and testimony, including that Elmagin and Entergrid trade using two kinds of strategies: market-making strategies and directional strategies. Comparing the market-making strategies and the directional strategies across companies, while they seem to have similar components, the descriptions on the record and the data work that he conducted show that there are differences as well. Based on his experience as an algorithmic trader, the similarities between these strategies arise from the application of elementary finance techniques, such as moving averages, or techniques widely used by participants in electricity markets, such as shift factors.
 - a. To the extent there are any high-level similarities between Elmagin’s market-making strategy of Breck and Entergrid’s Gryphon, Hydra, and Ziggi, they are based on the application of widely used, elementary financial principles. The differences, even based on a high-level description, are substantial: Only Elmagin holds FTRs for multiple months and uses ‘minimum spanning trees.’
 - b. To the extent there are any high-level similarities between Elmagin’s directional strategies of Faber and Chloe and Entergrid’s Yogi, Uma, and Tuva, they are based on the application of widely used, elementary financial principles. The differences, even based on a high-level description, are substantial: Only Elmagin holds FTRs for multiple months and uses minimum spanning trees.
- The similarities between Entergrid and Elmagin’s trading strategies come from widely used, elementary principles that would be known to reasonably sophisticated algorithmic trading practitioners.

- a. While review of evidence indicates that Entergy does not use minimum spanning trees, that technique and others for FTR path identification are well-known methods to achieve the goal of connecting all nodes in a grid with minimal cost. It is inconsistent with my experience as an algorithmic trader to consider the idea of using minimum spanning trees, separated from any implementation details, as proprietary.
- b. Congestion (and thus FTR value) is created by power flowing through binding constraints. Selecting FTRs based on target constraints is also a natural outcome of applying algorithmic, rules-based thinking to FTR trading.
- c. Identifying the FTRs with highest correlation to the source of the return (the “target constraint”) and lowest possible correlation to other constraints is an application of basic principles of diversification in portfolio construction.
- d. Analyzing the clustering or overlap of FTRs and their exposure to binding constraints is a natural final step in portfolio construction, based on elementary principles of portfolio construction.
- e. The use of a simple equally-weighted average of recent prices is a convenient technique that is simple to implement and is a natural extension of more complex models that allows for quick and efficient testing and optimization. This is one among a wide variety of possible time-horizons used in forecasting electricity prices. It is also fundamental and widely used among algorithmic traders in other assets, including in examples that described in his report.
- f. In his experience as an algorithmic trader, the insight of taking two possible price forecasts and testing whether the difference can generate a profit opportunity is a very basic one. This principle underlies a number of widely used, elementary algorithmic trading strategies, including in examples that describe in his report.

B. W. Anthony (“Tony”) Mason

Mr. Mason holds a Bachelor of Science in mathematics from the University of Chicago (1987), a Master of Science in Computer Science from the Georgia Institute of Technology (2017) and is currently completing a Doctorate in computer science at the University of British Columbia. He

has been on the research staff both at Stanford University (1987-89) and at Microsoft (2020). He worked in software development for 30 years in between his research postings, for three different companies. For the last 10 years he has served as a technical adviser to a company specializing in streaming game delivery.

Mr. Mason is expected to provide expert testimony concerning his opinions that:

- The code bases provided by Elmagin and Entergrid (through their respective counsel) for review are substantially different in terms of the manner in which they are implemented and the way in which they model the problems they address.
- The code bases provided by Elmagin and Entergrid do contain some similarities. However, after examining the similarities, those similarities generally appear to be mechanistic. For example, both code bases ingest information from multiple publicly or commercially available sources that are the same or similar to one another. Thus both code bases contain code that can read and process those similar elements.
- The algorithms implemented in the code bases provided by Elmagin and Entergrid are similar in some ways for two reasons. First, both are attempting to solve a similar problem: the development of a successful (i.e., profitable) strategy for Financial Transmission Right (FTR) trading. Second, both utilize standard statistical techniques for analyzing a “space” (or universe) of potential solutions that is too large for exhaustive testing.
- The two systems (as embodied in the code provided) do not appear to share code lineage aside from the use of some widely available and used code libraries. The techniques these code bases are widely and frequently used across many domains, including financial trading. Unique aspects of the Elmagin code base do not map to any corresponding portion of the Entergrid code.

As part of his evaluation of the Entergrid code, he attempted to identify particular techniques in the Entergrid code that are not based upon techniques that he had seen discussed in readily available materials about FTR trading. He was unable to identify any such code. Entergrid’s code merely uses standard Python libraries to implement FTR trading techniques. Despite his efforts in keeping with the professional standards of computer science to do so, he was unable to find any

Entergrid code that embodied anything that, in his opinion, is not widely used and fundamental in computer programming.

C. Maria Garibotti

Maria Garibotti holds a doctorate in economics from New York University and a Bachelor of Science, magna cum laude, from Universidad de San Andrés, Buenos Aires, Argentina. She has taught at Barnard College. For the last 10 years, she has worked as a practicing economist at Analysis Group, Inc., a consulting firm, where she has been promoted to Vice President. She has extensive practical economic experience over a wide range of diverse markets, ranging from radioactive waste disposal, to insurance, to health care contracting and beyond. On at least two occasions she has worked with the United States Department of Justice. She has worked on behalf of the U.S. International Trade Commission. *Id.* She has worked on behalf of Mexican governmental agencies. She has spoken before the American Bar Association and the New York Bar Association on economic issues.

Dr. Garibotti is expected to provide expert testimony concerning her opinions that:

- Dr. Pirrong has not conducted any proper economic or other scientific analysis to show that Entergrid's strategies are "functionally identical" or "highly similar" to Elmagin's strategies. In deposition he offered the economic test for substitutability. Should he offer this test again at trial, two goods being close substitutes reflects first and foremost how consumers see them and make economic decisions. Based on his report and deposition, Dr. Pirrong has not conducted any analysis of demand for Entergrid's and Elmagin's strategies, and thus he has no basis to assert that these strategies are close substitutes in the way this term is used in economics and in antitrust analysis.
- Dr. Pirrong blindly adopts Elmagin's Bid Data Analysis performed by Mr. Yuros. Dr. Pirrong acknowledges that he has neither seen the underlying code nor any other support for Elmagin's Bid Data Analysis, nor reviewed Mr. Yuros' deposition. Dr. Pirrong misinterprets Elmagin's Bid Data Analysis, and ignores numerous flaws that render its conclusions, as well as the opinions that Dr. Pirrong draws from it, unscientific and unreliable.

VI. EXHIBITS

The parties' respective lists of exhibits, remaining after resolution of objections and discussion amongst the parties, are attached as **Exhibit A** (Plaintiff's Exhibits) and **Exhibit B** (Defendants' Exhibits). Pursuant to the Court's Order at the Pretrial Conference on April 12, 2022, the physical exhibits will be delivered to court on or before the morning of April 26, 2022.

VII. TRIAL TIME
Plaintiff

Plaintiff expects that the time it needs for presenting its witnesses and cross of Defendants should take approximately 3.5 to 4 days. Plaintiff notes that this time may be affected by the extent of Defendants' counsel's examination of Dr. Chen and Dr. Petty, which the Court has order may proceed beyond the scope of cross, during Elmagin's case-in-chief.

Defendants

Defendants expect that the time they need for presenting their witnesses and cross of Plaintiff should take approximately 4.5-5.5 days. This estimate includes testimony presented by deposition.

VIII. DISCOVERY EVIDENCE AND TRIAL DEPOSITIONS

A. Plaintiff's Statement

Plaintiff expects to present, by designation, the testimony of Jay Tian, who is unavailable.

Plaintiff continues its objection to the stated intent of Defendants to present, by deposition, any testimony of Matthew Yuros, who is not a managing agent of Elmagin and whose deposition testimony is not otherwise admissible under Fed. R. Civ. P. 32.

B. Defendants' Statement

Defendant may present, by designation, the testimony of Jay Tian, who is unavailable.

Defendants reserve the right to use already designated deposition testimony of the following witnesses as part of their case (i.e. not for impeachment) and regardless of whether or not the witness is called by Plaintiff: Kevin Gates, Roger Gates, Roger Chiang and Matthew Yuros. As set forth in Defendants' Letter to the Court on April 14, 2022 (ECF 223), Mr. Yuros is a managing agent of Elmagin.

Respectfully submitted,

CAESAR RIVISE, PC

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LLC*

CERTIFICATE OF SERVICE

I hereby certify that on this day, April 19, 2022, I served a true and correct copy of the foregoing JOINT PRETRIAL ORDER PURSUANT TO LOCAL RULE 16.1 via email upon the counsel of record for Defendants.


/s/ Douglas Panzer

Douglas Panzer

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Attorneys for Plaintiff

So ordered this 26th day of April, 2022.

A handwritten signature in black ink, appearing to read "Stephen Biber". The signature is fluid and cursive, with a long horizontal stroke at the end.

UNITED STATES CIRCUIT JUDGE

EXHIBIT A

USDC EDPA 2:20-cv-02576-TJS ELMAGIN CAPITAL, LLC v. CHEN et al.

Plaintiffs' Trial Exhibits

Trial Exh. No.	Previous Exh. No.	Production No(s).	Date	Description	
PTX001		N/A	06/01/2020	Complaint EDPA 20-02576-TJS Misappropriation of Trade Secrets and Breach of Contract	Withdrawn by PLAINTIFF
PTX002		N/A	11/02/2020	Excerpts from Defendants' Answers and Objections to Plaintiff's First Set of Interrogatories to Defendants	
PTX003	P0001	N/A	10/18/2020	Notice of 30(b)(6) Deposition (10/18/2020)	
PTX004	P0002	N/A	06/01/2020	Complaint	Withdrawn by PLAINTIFF
PTX005	P0003	EC-CONF-00000312	01/18/2018	Chao NDNC Agreement (01-01-18)	
PTX006	P0004	EN-AEO-1-012975	01/10/2019	Entergrid LLC OPERATING Agreement	
PTX007	P0005	EN-AEO-1-013057	01/10/2019	Entergrid Fund I, LLC OPERATING Agreement	
PTX008	P0006	EN-AEO-1-004057	06/01/2019	Entergrid Amended and Restated LLC Agreement	
PTX009	P0007	EN-AEO-1-006381	01/21/2020	Jay Tian Employment Offer Letter - January 2020	
PTX010	P0008	EN-AEO-1-006383	01/22/2020	Jay Tian Employee Proprietary Information Agreement	
PTX011	P0009	EN-AEO-1-008132	06/01/2019	Employment Agreement of Karl Petty	
PTX012	P0010	EN-CNF-1-010212	08/23/2019	Employment Agreement Docusign Confirmation - KARL PETTY	
PTX013	P0011	EN-AEO-1-000138	02/17/2020	Dov Quint offer letter	
PTX014	P0012	EC-AEO-003594839	01/08/2016	KARL PETTY Elmagin Consulting Agreement	
PTX015	P0013	EN-AEO-1-006667	04/09/2019-07/03/2020	Karl Petty Notes	
PTX016	P0014	EN-CNF-1-006323	01/2020	Entergrid Employee Handbook (January 2020)	
PTX017	P0015	EN-AEO-1-000210	10/15/????	Mat Affourtit Consulting Agreement	
PTX018	P0016	EN-AEO-1-011210	12/09/2019	Email 12/9/2019 Re: Outage Predictions	Redacted per ECF 194
PTX019	P0017	EN-AEO-1-002888	2019	2019 Tax return	

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Plaintiffs' Trial Exhibits

Trial Exh. No.	Previous Exh. No.	Production No(s).	Date	Description	
PTX020	P0018	EN-AEO-1-003420	02/06/2019	Amazand Contract Terms notes - February 6, 2019	
PTX021	P0019	EN-AEO-1-010399	07/26/2019	Maplewell Engineering Co Proposal July 26 2019	Withdrawn by PLAINTIFF
PTX022	P0020	EN-AEO-1-003011	2019	2019 Audited Financials	
PTX023	P0021	EN-AEO-1-000747	12/13/2019	Entergrid Fund I 2019 Accounting (Balance Sheet, P&L, etc.) 2019 Entergrid Fund I LLC Accounting v2 (1).xlsx	
PTX024	P0022	EN-AEO-1-000755	05/31/2021	Entergrid Fund I Accounting through 5/30/2020 2020.05.31- Entergrid Fund I LLC Accounting.xlsx	
PTX025	P0023	AT-AEO-T-006822	08-12/2020	CAISO bids and PnL - 8/28/2020 - 11/28/2020 - caiso bids pnl.csv	
PTX026	P0024	EN-AEO-1-000299	02/17/2019	Gryphon Strategy - February 17, 2019	
PTX027	P0025	EN-AEO-SC-000707	05/09/2019	Spot Check on Gryphon Backtest - August 9, 2019	
PTX028	P0026	EN-AEO-1-000532	02/13/2019	[REDACTED] - February 13, 2019	
PTX029	P0027	EN-AEO-1-000553	07/04/2019	Universe Construction Methods - July 4, 2019	
PTX030	P0028	EN-AEO-1-000290	06/09/2019	General Historical Strategy - June 9, 2019	
PTX031	P0029	EN-AEO-SC-000612	7/2019- 6/17/2019	Bids for July 2019 - June 17, 2019	
PTX032	P0030	EN-AEO-SC-000584	07/15/2019	Aug 2019 Bids - July 15, 2019	
PTX033	P0031	EN-AEO-1-000492	08/12/2019	PnL vs Clear Price in Gryphon MISO - August 12, 2019	
PTX034	P0032	EN-AEO-1-000572	05/03/2020	Vail Strategy vs. [REDACTED]	
PTX035	P0033	AT-AEO-T-006824	09/01/2019- 11/01/2020	MISO FTR awards and PnL - 9/1/2019 - 11/1/2020 - miso ftr award pnl.csv	
PTX036	P0034	EN-AEO-1-004310	01/30/2019	Manage Production and Development Environments - 1/30/2019	
PTX037	P0035	EN-AEO-1-000080	05/05/2020	Change Vail to Add in Production	
PTX038	P0036	EN-1-032945	12/24/2019	Slack message 12/14/2019 - [REDACTED]	

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Plaintiffs' Trial Exhibits

Trial Exh. No.	Previous Exh. No.	Production No(s).	Date	Description	
PTX039	P0037	EN-1-022686	05/07/2020	Slack message 5/7/2020 - [REDACTED]	
PTX040	P0038	EN-1-023114	05/18/2020	Slack message 12 05/18/2020 [REDACTED]	
PTX041	P0039	EN-1-049168	05/18/2020	Slack message 5/18/2020 - [REDACTED]	
PTX042	P0040	EN-1-023117	05/18/2020	Slack message 5/18/2020 - [REDACTED]	
PTX043	P0041	EN-AEO-SC-000598	03/04/2020	Backtest Uma on [REDACTED] - March 4, 2020	
PTX044	P0042	EN-1-019206	03/04/2020	Slack message 3/4/2020 - All gains have come from Hydra	
PTX045	P0043	EN-AEO-1-004206	05/04/2020	FTR Bidding Process - May 7, 2020	
PTX046	P0044	EN-1-032948	12/15/2019	Slack message 12/15/2019 from chao, [REDACTED]	
PTX047	P0045	EN-AEO-SC-000664	02/09/2020	Model LMP with Dayzer Outputs - 2/9/2020	
PTX048	P0046	EN-1-023121	05/18/2020	Slack message 5/18/2020 - [REDACTED]	
PTX049	P0047	EN-1-017656	12/11/2019	Slack message 12/11/2019 from Chao re Xena	
PTX050	P0048	EN-AEO-1-004573	05/19/2020	MISO Jun 20 Bids - May 19, 2020	
PTX051	P0049	EN-AEO-1-000535	05/13/2020	[REDACTED]	
PTX052	P0050	EN-AEO -1- 006381	01/01/2018	Membership Interest Purchase and Release Agreement	
PTX053	P0051	EC -AEO- 003842115	12/05/2017	Chao email 12/5/2017 - not going to run strategies run at Elmagin	
PTX054	P0052	EC-AEO-003766109	08/24/2017	Chao email 8/24/2017 - Faber	
PTX055	P0053	EN-SOURCE-005066	12/15/2016	[REDACTED] - 12 Month Test	

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Plaintiffs' Trial Exhibits

Trial Exh. No.	Previous Exh. No.	Production No(s).	Date	Description	
PTX056	P0054	EC-AEO-003889202	10/24/2016	FTR Universe from [REDACTED]	
PTX057	P0055	EC-AEO-003889344	06/24/2016	Breck Backtest	
PTX058	P0056	EC-AEO-003889063	03/26/2015	Chao email 3/26/2015 - simple backtest	
PTX059	P0057	EC-AEO-003736285	02/11/2015	Chao email 2/11/2015 - Optimal FTR Bidding	
PTX060	P0058	EC -AEO- 003819560	03/13/2015	Chao email 3/13/2015 - to Herb Yan re: [REDACTED]	
PTX061	P0059	EC -AEO- 003846900	06/06/2016	Chao email 6/6/2016 - [REDACTED] Question	
PTX062	P0060	EC-AEO-003889072	03/27/2015	Chao email 3/27/2015 - two backtests	
PTX063	P0061	EC-AEO-003578170	06/24/2016	Explain Breck Profit	
PTX064	P0062	EC-AEO-003579755	03/27/2015	Chao email 3/27/2015 - secret stuff	
PTX065	P0063	EC-CONF-00002318	01/06/2016	Petty email 1/6/2016 FTR Portfolio Value Calculator	
PTX066	P0064	EN- SOURCE -004668	01/04/2016	Calculate FTR Bid Performance	
PTX067	P0065	EN- AEO -1- 067754	03/06/2019	Petty email 3/6/2019 - discussing Chao's next steps, Petty joining	
PTX068	P0066	EN AEO 1 068002	03/16/2020	Ye Zhang email to Chao 3/16/2020 re: FTR and UTC Markets Volume Comparison	Excluded per ECF 194
PTX069	P0067	EN AEO 1 068003	N/A	Notes re: PJM FTR and UTC	Excluded per ECF 194
PTX070	P0068	EN AEO 1 067985	07/10/2020	Wei Luo email to Chao 7/10/2020 - PJM FTR Available Nodes	Excluded per ECF 194
PTX071	P0069	EN- AEO -1- 067662	04/06/2019	Chao email 4/6/2019 re: operating agreements and employment agreement	
PTX072	P0070	EN- AEO -1- 070295	09/27/2018	Ted Graham email to Chao 9/27/2018 - Mexico	Redacted per ECF 194
PTX073				INTENTIONALLY OMITTED	
PTX074	P0074	N/A	04/15/2021	TradeDynamix - Compliance, Trading	
PTX075				INTENTIONALLY OMITTED	
PTX076	P0076	N/A	04/13/2021	WATS Equities Electronic Trading – Wells Fargo	

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Trial Exh. No.	Previous Exh. No.	Production No(s).	Date	Description	
				Corporate & Investment Banking	
PTX077				INTENTIONALLY OMITTED	
PTX078	P0078	EC-AEO-003783062	12/02/2015	Tang email 12/2/2015 to Chao re: Breck	
PTX079	P0079	EC-AEO-003579587	01/01/2016	Tang email 1/1/2016 Breck strategy recommendations for Feb 2016	
PTX080	P0080	EC-AEO-003783040	12/02/2015	Yuros email to Tang 12/2/2015 - Breck [REDACTED]	
PTX081	P0081	EC-AEO-003889368	04/05/2016	Breck on Annual Auction	
PTX082	P0082	EC-AEO-003889344	06/24/2016	Breck Backtest	
PTX083	P0083	EN-AEO-1-067648	04/11/2019	Email from Chao Chen re waneka project	
PTX084	P0084	EN-CNF-073461	01/2016	Petty notes from 1/2016	
PTX085	P0085	N/A	03/23/2021	PJM Principal Annual Recertification FAQs	Withdrawn by PLAINTIFF
PTX086	P0086	EN-AEO-1-006727	5/2019-11/2020	Petty to-do notes and notes on 5/2019 - 11/2020	
PTX087	P0087	EN-AEO-073433	12/31/2020	2020.12.31 Entergrid LLC- Accounting Reports	
PTX088	P0088	EN-AEO-073438	12/31/2020	2020.12.31 Entergrid Fund I Accounting	
PTX089				INTENTIONALLY OMITTED	
PTX090	P0092	N/A	N/A	Source code screenshots	
PTX091				INTENTIONALLY OMITTED	
PTX092				INTENTIONALLY OMITTED	
PTX093	P0095	EN-SOURCE-003075	10/05/2016	Chao Email 10/5/2016 Re: where a specific path was dropped	
PTX094	P0096	N/A	N/A	Jay Tian LinkedIn Screen capture	
PTX095	P0097	EN-1-024275	06/15/2020	Slack message from Chao, "not running hydra. Running Tuva instead"	
PTX096	P0098	EN-AEO-1-004334	07/15/2020	MISO Aug20 Bids 7/15/2020	
PTX097	P0099	EN-1-021256	04/09/2020	4/9/2020 Slack message "[REDACTED]"	

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PTX098	EX A	N/A	05/10/2021	Financial Transmission Rights	
PTX099	EX C	EC-CONF-00000258-280	03/16/2016	Elmagin Capital Handbook	
PTX100	EX I	EC-AEO-003786257-6260	01/11/2016	Email from Yuanmin Tang re Breck strategy recommendations for Feb 2016	
PTX101	EX J	EC-AEO-003862536	01/31/2017	Email from Matthew Yuros re FTR Profit thru 2/1	
PTX102	EX K	EC-AEO-003863063-3064	02/06/2017	Email from Chao Chen re FTR Profit thru 2/7	
PTX103	EX L	EC-AEO-003889020-9031	04/11/2017	PJM Binding Constraint Analysis	
PTX104	EX M	EN-AEO-1-003449	09/13/2019	Backtest Gryphon in PJM using [REDACTED]	
PTX105	EX N	EC-AEO-003889140-9158	12/07/2017	Faber update	
PTX106	EX O	EN-AEO-1-003789-3792	10/31/2019	Decompose FTR Portfolios to Constraints	
PTX107	EX P	EN-AEO-1-003465-3473	08/24/2019	Bayou Duboin Constraint, MISO Apr 9 2019	
PTX108	EX Q	EN-AEO-1-004327	02/26/2019	[REDACTED] Portfolio	
PTX109	EX R	EC-AEO-003807946	02/16/2017	Email from Chao Chen re Faber Fed 2017 portfolio analysis	
PTX110	EX S	EN-AEO-1-004716-717	08/12/2019	Pnl vs Clear Price in Gryphon MISO	
PTX111	EX T	EN-AEO-070730-733	07/23/2018	Email from Patrick de Man re investment	Excluded per ECF 194
PTX112	EX U	EN-AEO-1-071995	08/16/2018	Email from Chao Chen re Hi (non-compete ending)	
PTX113	EX W	EN-AEO-1-011264	11/25/2019	Email from Chao Chen re generate trades that [REDACTED]	
PTX114	EX X	EC-AEO-003578206	N/A	Marginal Unit Panorama	Withdrawn by PLAINTIFF
PTX115	EX Z	EC-AEO-003889209-9215	06/29/2017	MISO binding constraints contingency test	
PTX116	EX AA	EC-AEO-003889140	12/07/2017	Faber update	
PTX117	EX CC	N/A	05/23/2021	Pirrong: The price of power: The valuation of power — Google Scholar	Withdrawn by PLAINTIFF
PTX118	EX DD	N/A	04/16/2013	Prof. Pirrong is Energy Expert for Wall Street	Withdrawn by

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Trial Exh. No.	Previous Exh. No.	Production No(s).	Date	Description	
				Journal	PLAINTIFF
PTX119	EX FF	N/A	6/2011	Chakraborty, T. & Kearns, M., Market Making and Mean Reversion, 12th ACM Conference on Electronic Commerce, June 2011, Univ. of Penn Archive	
PTX120	EX GG	N/A	03/01/2021	Market Maker: What Is a Market Maker (MM) investopedia.com	Withdrawn by PLAINTIFF
PTX121	EX HH	N/A	05/21/2021	Market Maker Explained for Beginners, Warrior Trading Blog	Withdrawn by PLAINTIFF
PTX122	EX II	N/A	03/18/2021	Bid ask Spread, investopedia.com	Withdrawn by PLAINTIFF
PTX123	EX JJ	N/A	05/21/2021	Financial Transmission Right (FTR)	
PTX124	EX KK	N/A	05/25/2021	FAQs: Financial Transmission Rights (FTRs)	
PTX125	EX LL	EN-AEO-1-003930-3937	03/2019	Chao Chen re: Electricity Market Clearing Mechanisms	
PTX126	EX MM	EN-AEO-1-010758-0760	04/01/2019	Email from Xin Chen re Power Trading Basics – Invitation to edit	
PTX127	EX NN	EC-AEO-003818564-8565	02/06/2015	Email from Herbert Yan re Find FTR [REDACTED]	
PTX128	EX OO	EC-AEO-003785774-5776	12/31/2015	Email from Chao Chen re decompose FTR portfolios	
PTX129	EX QQ				Separated into PTX129-A through PTX129-D
PTX129-A		EC-SOURCE-000583-584		Universe Changes Summary	
PTX129-B		EC-AEO-003578981-8994	6/2016	Update: June 24-30	
PTX129-C		EC-AEO-003766999-7002	9/18/2017	elmabatch@elmagincapital email re: Bid Generation	
PTX129-D		EC-SOURCE-004685-4690	1/3/2017	Breck profit filter test	

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PTX130	EX RR	N/A	04/30/2021	Email from Charles P Goodwin re Designation of Documents and Expert Reports	Withdrawn by PLAINTIFF
PTX131	EX SS	EN-AEO-1-003799-3800	06/06/2019	Chao Chen: Diagnose PJM FTR Universe	
PTX132	EX TT	N/A	1997	Main, Michael et al., Data Structures and Other Objects Using C++, pgs. 3-4, 1997	
PTX133	EX UU	N/A	05/21/2021	College of San Mateo, Professor Contact Information, Stacey Grasso, Associate Professor	Withdrawn by PLAINTIFF
PTX134	EX VV	N/A	04/16/2009	Shaffer, Clifford A., A Practical Introduction to Data Structures and Algorithm Analysis Third Edition (Java)	
PTX135	EX WW	N/A	05/24/2021	Basics of Algorithmic Trading: Concepts and Examples, investopedia.com	Withdrawn by PLAINTIFF
PTX136	EX ZZ	EC-AEO-003579599-9607	08/16/2017	Email chain from Matthew Yuros re Farber bids Sep 2017	
PTX137	EX AAA	EC-AEO-003802092-2094	10/12/2016	Email from Kevin Gates re Chloe in PJM no prompt – using prompt universe	
PTX138	EX BBB	EC-AEO-003825456	12/21/2016	Email from Chao Chen re ideas for trading	
PTX139	EX CCC	EC-AEO-003579609-9618	02/05/2015	Email to analysis@elmaginecapital.com re [REDACTED]	Withdrawn by PLAINTIFF
PTX140	EX DDD	EC-AEO-003766096-6101	08/24/2017	Email from Chao Chen re Faber	
PTX141	EX EEE	EC-AEO-003820981	07/03/2015	Email from Matthew Yuros re [REDACTED]	
PTX142	EX FFF	EC-AEO-003813543-3548	07/05/2017	Email from Yuanmin Tang re Ginger High-volume update	
PTX143	EX GGG	EC-SOURCE-000149-154	06/08/2016	ERCOT CRR Credit Calculation, Chao Chen	
PTX144	EX	N/A	05/24/2021	Screen Capture IEEE Xplore, Algorithmic Trading	Withdrawn by

Trial Exh. No.	Previous Exh. No.	Production No(s).	Date	Description	
	HHH				PLAINTIFF
PTX145	EX III	N/A	2014	Rafal Weron, Electricity price forecasting: A review of the state of the art with a look into the future, International Journal of Forecasting, Vol. 30, Issue 4, 2014, pp. 1030-1081	Withdrawn by PLAINTIFF
PTX146	EX JJJ	N/A	2002	Xingwang Ma, D. I. Sun and A. Ott, "Implementation of the PJM financial transmission rights auction market system," IEEE Power Engineering Society Summer Meeting, 2002, Vol.3 pp. 1360-1365	Withdrawn by PLAINTIFF
PTX147	EX LLL	N/A	05/25/2021	Correlation and dependence, Wikipedia	Withdrawn by PLAINTIFF
PTX148	EX NNN	EC-NODES-00000338	09/30/2014	Certificate of Formation of Limited Liability Company - Elmagin Capital LLC	
PTX149		EN-AEO-1-004916-4918	03/19/2019	Chao Chen re Power Trading Ideas	
PTX150		EN-AEO-1-006415-6448	09/30/2019 (updated 11/20/2019)	Karl Petty, A Simple PTP Strategy in ERCOT	
PTX151		EC-AEO-003889236-8949	N/A	██████████ Elmagin Presentation	
PTX152		EN-AEO-1-010824	03/11/2019	Email from Karl Petty, Re Power Market Info - March 2019	
PTX153		N/A	12/30/2020	Elmagin Responses to Second Set of Interrogatories	Withdrawn by PLAINTIFF
PTX154		EC-AEO-003802579-2581	10/21/2016	Email from Yuanmin Tang re Breck w Chloe Overlay PJM.xlsx	
PTX155		EN-AEO-1-005011	06/14/2020	Chao Chen re ██████████	
PTX156		EN-1-020203	03/27/2020	Slack message from Chao re ██████████	

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PTX157		EN-1-020264	03/27/2020	Slack message from Chao re [REDACTED]	
PTX158		EN-AEO-1-000037	09/13/2019	Chao Chen re Backtest Gryphon Using [REDACTED]	
PTX159		EN-AEO-1-000495	N/A	Whiteboard – Strategy descriptions	
PTX160		EN-1-023442	05/22/2020	Slack message from Chao re Vail description ([REDACTED])	
PTX161		EN-AEO-1-005308-5310	07/31/2020	Dov Quint, CAISO Reggie Strategy; Samson	
PTX162		EN-AEO-1-005002-5003	07/21/2020	Chao Chen and Dov Quint, Samson	
PTX163		EN-AEO-1-000437-442	05/19/2020	Chao Chen re TUVA - MISO Bids	
PTX164		EN-1-018910	02/18/2020	Slack message from Chao, - This is my Winston Strategy	
PTX165		EN-AEO-1-067769-771	02/08/2018	Email from Chao Chen re Hi! Do you want to start company	
PTX166		EC-AEO-003876268-6270	12/27/2017	Email from Rich Gates re Non-Compete	
PTX167		EN-AEO-1-070914-70917	04/05/2018	Email from Nick Shaffer re SaaS Abstr -Chao declines job offer due to noncompete	
PTX168		EN-AEO-1-005484-5495	06/03/2019-12/31/2019	Entergrid Fund I LLC Financial Statements - June-Dec 2019	
PTX169		EN-AEO-073506	N/A	month strategies	
PTX170		EN AEO 1 009382 9392	05/14/2020	Letter to Karl Petty from Steven Soles re Elmagin Capital LLC Consulting Agreement	Withdrawn by Stipulation
PTX171		EN AEO 1 009394 9405	05/14/2020	Soles Notice Letter to Chen	Withdrawn by Stipulation
PTX172		EN-AEO-1-000182-0209	01/10/2019	PROPOSED Entergrid LLC Original LLC Agreement	
PTX173		EN-AEO-1-011191-1199	02/24/2020	Entergrid Fund I LLC Member Agreement in CAISO	
PTX174		EN-CNF-1-001149-1162	02/05/2019	Entergrid Fund I LLC - ERCOT Market Participant	

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Trial Exh. No.	Previous Exh. No.	Production No(s).	Date	Description	
				Agreement	
PTX175		EN-AEO-1-010251-0256	06/01/2019	Karl Petty - EGRD Restricted Units Agreement 200K units for Cash	
PTX176		EN-AEO-1-010257-10262	06/01/2021	EGRD Restricted Units Agreement Karl Petty 200K for Continued Employment	
PTX177		EN-CNF-1-006724	01/10/2019	Entergrid LLC application for articles of organization	
PTX178		EN-CNF-1-003539-003542	04/22/2020	Entergrid Fund I LLC - Colorado Articles of Organization filing certificate	
PTX179		EN-AEO-1-000229-0230	04/06/2019	Chao Chen re Entergrid Operating Agreement - Ownership Notes re Karl Petty Ownership 4/6/19	
PTX180		EN-AEO-1-003925	01/18/2019	Chen/Moriarty Trust EFI Subscription \$1 million	
PTX181		EN-AEO-1-003926	01/18/2019	Entergrid EFI Subscription \$50K	
PTX182		EN-AEO-1-004010	02/26/2019	Chen EFI Subscription \$750K	
PTX183		EN-AEO-1-004045	01/18/2019	Chen/Moriarty Trust EFI Subscription \$150K	
PTX184		EN-AEO-1-003238-3253	09/25/2019	Administration Agreement - Fleming Financial Services	
PTX185		EN-AEO-1-003254-3259	11/12/2019	Agreement for Consulting Services - Fleming Financial Services	
PTX186		AT-AEO-T-006823	02-09/2020	ercot_bids	
PTX187		AT-AEO-T-006825	9/2019-11/2020	pjmiso_ftr_award_pnl	
PTX188		EN-SOURCE-004647	N/A	Chao Instagram	
PTX189		EN-AEO-SC-000653-663	09/09/2019	Chao Chen re FTR Bid Process	
PTX190		EN-AEO1-000471-485	N/A	PJM Feb. 2020 Bids	
PTX191		EN-1-017733	12/16/2019	Slack message – from Chao re [REDACTED]	
PTX192		N/A	03/30/2021	Expert Report of Dr. Craig Pirrong	
PTX193		EC-AEO-003891420.PTX	05/25/2020	Matthew Yuros, EGRD Trading Overview	

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Trial Exh. No.	Previous Exh. No.	Production No(s).	Date	Description	
PTX194		EC-AEO-003891425.PTX		Matthew Yuros, EGRD Trading Overview	
PTX195		EC-AEO-003891417	5/26/2020	Matthew Yuros, EGRD Trading Overview	
PTX196		EC-AEO-003891419		Matthew Yuros, EGRD Trading Overview	<i>Withdrawn by Stipulation</i>
PTX197		EC-AEO-003578170-8182	03/10/2015	Chao Chen re Predict Target Allocation	<i>Withdrawn by PLAINTIFF</i>
PTX198		EC-AEO-003579587-9591	01/01/2016	Email from Yuanmin Tang, Breck strategy recommendations for Feb 2016	<i>Withdrawn by PLAINTIFF</i>
PTX199		EC-AEO-003579608	05/10/2015	Email from Chao Chen rebids this month	
PTX200		EC-AEO-003579609-9618	02/05/2015	Email from Chao Chen re [REDACTED]	
PTX201		EC-AEO-003579630	03/27/2015	Email from Chao Chen re secret stuff re "Breck"	<i>Withdrawn by PLAINTIFF</i>
PTX202		EC-AEO-003579631-9638	03/26/2015	Email from Chao Chen re simple backtest	
PTX203		EC-AEO-003579639-9644	03/27/2015	Email from Chao Chen re two backtests	<i>Withdrawn by PLAINTIFF</i>
PTX204		EC-AEO-003579645-9649	09/30/2016	Email from Ying Wu, where a specific path was dropped	
PTX205		EC-AEO-003579672-9673	03/10/2015	Chao Chen re Predict Target Allocation	
PTX206		EC-AEO-003707623	06/18/2015	Email from Chao Chen re [REDACTED]	
PTX207		EC-AEO-003579708-9711	02/09/2015	Email from Chao Chen re [REDACTED]	
PTX208		EC-AEO-003668673-8677	08/24/2017	Email from Chao Chen re: Faber	<i>Withdrawn by PLAINTIFF</i>
PTX209		EC-AEO-003734465-4466	04/04/2016	Email from Chao Chen re: plaining 2016	
PTX210		EC-AEO-003819826-9831	03/27/2015	Email from Matthew Yuros re: simple backtest	
PTX211		EC-AEO-003820976-0977	07/01/2015	Email from Chao Chen re Breck Strategy Updates	
PTX212		EC-AEO-003854092-4096	10/05/2016	Email from Chao Chen re: where a specific path was	

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				dropped	
PTX213		EC-AEO-003889063-9070	03/26/2015	Email from Chao Chen re: simple backtest	<i>Withdrawn by PLAINTIFF</i>
PTX214		EC-AEO-003889079-9080	04/05/2016	Chao Chen re: Breck on Annual Auction	<i>Withdrawn by PLAINTIFF</i>
PTX215	DX-4	EC-AEO-003889287-9301	09/25/2020	Entergrid LLC and Its Affiliated Funds Trading Overview	
PTX216		EC-AEO-003890414	01/2021	Barton Fund LLC	<i>Redacted per ECF 233</i>
PTX217		EC-AEO-003890415	01/2021	Elmagin Power Fund LLC	<i>Redacted per ECF 233</i>
PTX218		EC-AEO-003890416	01/2021	Elmiso LLC	<i>Redacted per ECF 233</i>
PTX219		EC-CONF-00000705-710	03/15/2016	Consulting Agreement between Elmagin and OZ Intelligence, INC.	
PTX220		EC-CONF-00000806-811	06/17/2016	Consulting Agreement between Elmagin and Wen Yuan Tang	
PTX221		EC-CONF-00000989	10/25/2017	Email from Steven Soles re: Signed Employment Agreement William Blankson	
PTX222		EC-SOURCE-004681-684	07/09/2015	Chao Chen re: [REDACTED] Didn't work (redacted)	
PTX223		EN-1-015722		Slack message from Chao re: ERCOT	
PTX224		EN-1-015723	09/05/2019	Slack message from Petty re: Good	
PTX225		EN-1-015724	09/05/2019	Slack message from Chao re: Good	
PTX226		EN-1-015725	09/05/2019	Slack message from Petty re: first thing worked	
PTX227		EN-1-015726	09/05/2019	Slack message from Petty re: everybody doing same	
PTX228		EN-1-015727	09/05/2019	Slack message from Chao re: normal market	
PTX229		EN-1-015728	09/05/2019	Slack message from Chao re: other people	

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PTX230		EN-1-015729	09/05/2019	Slack message from Chao re: similar	
PTX231		EN-1-015730	09/05/2019	Slack message from Chao re: make money	
PTX232		EN-1-015731	09/05/2019	Slack message from Petty re: suspicious	
PTX233		EN-1-016230	09/20/2019	Slack message from Chao re: Entergrid making lots of money	
PTX234		EN-1-017767	12/17/2019	Slack message from Chao re: here's hydra	
PTX235		EN-1-023113	05/18/2020	Slack message from Chao re: MISO bids	
PTX236		EN-1-062714	06/12/2020	Slack message from Jay re: bid constraints	
PTX237		EN-1-062715	06/12/2020	Slack message from jay re: [REDACTED]	
PTX238		EN-AEO-073436	06/2019-12/2020	Entergrid Fund LLS Member Allocations	
PTX239		EN-AEO-073450	06/2019-01/2021	Entergrid Fund LLS Member Allocations	
PTX240		EN-AEO-073452	01/31/2021	Entergrid Fund LLC Balance Sheet	
PTX241		EN-AEO-1-000272-274	01/15/2019	Chao Chen FTR Participant Profitability	
PTX242		EN-AEO-1-000279-282	08/05/2019	Chao Chen FTR Universe Construction [REDACTED]	
PTX243		EN-AEO-1-000444-446	04/03/2020	Chao Chen Model [REDACTED]	
PTX244		EN-AEO-1-000530-531	06/16/2020	Chao Chen [REDACTED]	
PTX245		EN-AEO-1-000535-542	05/13/2020	Chao Chen Trade FTRs [REDACTED]	
PTX246		EN-AEO-1-000577-580	02/21/2020	Chao Chen Winston Backtest	
PTX247		EN-AEO-1-004274	06/22/2020	Chao Chen How to handle wind prediction error	
PTX248		EN-AEO-1-007008	05/19/2020	Email from Trello re: Chao Chen commented on the card Vail	
PTX249		EN-AEO-1-068049-8053	02/25/2019	Chao Chen Entergrid FTR Risk Policy	
PTX250		EN-SC-002130-2135	02/09/2020	Chao Chen [REDACTED]	
PTX251		EC-AEO-003889283-9286	04/12/2016	Chao Chen Vienna-Crisfield FTR [REDACTED], 2015-2016 Annual PJM Auction	

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PTX252		EN-1-017713	12/15/2019	(Ziggi/Hydra comparison)	
PTX253		EC-003891418	04/30/2015	Hooper Agreement	
PTX254		EC-CONF-000002819-2822	02/20/2017	Services Agreement between TFS Capital LLC and Elmagin Capital LLC	
PTX255		EC-CONF-000002816-2818	06/05/2019	Services Agreement between Elmagin Capital LLC and between TFS Capital LLC	
PTX256		EC-AEO-003626720	12/2017	At-Will Employment Agreement Yuanmin Tang	
PTX257		EC-AEO-003746421	02/24/2016	At-Will Employment Agreement Yinghua Wu	
PTX258		EC-AEO-003765552	08/14/2017	Email from Chao Chen re: Power Trading Risk and Rewards – Invitation to edit	
PTX259		EC-AEO-003765075	07/31/2017	Email from Kevin Gates re Berkeley Trip	
PTX260		EC-AEO-003757084-7096	01/31/2016	Elmagin Power Fund LLC	
PTX261		EC-AEO-003578731-8764	2017	Elmagin Capital LLC Q3 2017	
PTX262		EC-AEO-003804885-4887	12/21/2016	Email from Guidong Zhu re Ideas for Trading	
PTX263		EN-CNF-1-073143-3174	01/18/2018	Email from Chao Chen re: Draft SPA and NDNC	
PTX264		EN-CNF-1-073218	01/26/2018	Email from Chao Chen re: Purchase Agt and Non-Disclosure/Non-Compete Agt	
PTX265		EN-CNF-1-073281	01/16/2018	Email from Chao Chen re: Draft SPA and NDNC	
PTX266		EC-AEO-003891033-1111	03/11/2018	Elmagin Capital LLC – Limited Research Tax Credit Study for Startup Payroll Tax Offset	
PTX267		EC-AEO-003891158-1248	03/09/2019	Elmagin Capital LLC – Research Tax Credit Study for Startup Payroll Tax Offset	
PTX268		EC-AEO-003891271	02/22/2020	Elmagin Capital LLC – Research Tax Credit Study for Start	
PTX269		EC-AEO-003578786	10/2017	Elmiso Oct 2017	<i>Redacted per ECF 233</i>
PTX270		EC-AEO-003578792	12/2017	Elmagin Dec 2017	<i>Redacted per ECF 233</i>

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Plaintiffs' Trial Exhibits

Trial Exh. No.	Previous Exh. No.	Production No(s).	Date	Description	
PTX271		EC-AEO-003578796	09/2017	Elmagin Sept. 2017- No BBG	<i>Redacted per ECF 233</i>
PTX272		EC-AEO-003579336	11/2017	Elmiso Nov 2017	<i>Redacted per ECF 233</i>
PTX273		EC-AEO-003579338	09/2017	Elmiso Sept 2017- 20171025 revision	<i>Redacted per ECF 233</i>
PTX274		EC-AEO-003579344	11/2017	Elmagin Nov 2017	<i>Redacted per ECF 233</i>
PTX275		EC-AEO-003579346	09/2017	Elmagin Sept 2017- 20171120 revision	<i>Redacted per ECF 233</i>
PTX276		EC-AEO-003649679	01/2017	Elmagin Jan 2017	<i>Checked for Redaction per ECF 233</i>
PTX277		EC-AEO-003650175	02/2017	Elmagin Feb 2017	<i>Checked for Redaction per ECF 233</i>
PTX278		EC-AEO-003650429	04/2017	Elmagin Apr 2017	<i>Checked for Redaction per ECF 233</i>
PTX279		EC-AEO-003650773	05/2017	Elmagin May 2017	<i>Redacted per ECF 233</i>
PTX280		EC-AEO-003680592	04/2017	Elmagin April 2017	<i>Checked for Redaction per ECF 233</i>
PTX281		EC-AEO-003690504	08/2017	Elmiso Aug 2017	<i>Redacted per ECF 233</i>
PTX282		EC-AEO-003690505	08/2017	Elmagin Aug 2017	<i>Redacted per ECF 233</i>

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Plaintiffs' Trial Exhibits

Trial Exh. No.	Previous Exh. No.	Production No(s).	Date	Description	
PTX283		EC-AEO-003698037	10/2017	Elmiso Oct 2017	<i>Redacted per ECF 233</i>
PTX284		EC-AEO-003698038	10/2017	Elmagin Oct 2017	<i>Redacted per ECF 233</i>
PTX285		EC-AEO-003754795	12/2016	Elmagin Dec 2016	<i>Checked for Redaction per ECF 233</i>
PTX286		EC-AEO-003756055	03/2017	Elmagin Mar 2017	<i>Checked for Redaction per ECF 233</i>
PTX287		EC-AEO-003757647	06/2017	Elmagin Jun 2017	<i>Redacted per ECF 233</i>
PTX288		EC-AEO-003758123	07/2017	Elmagin July 2017	<i>Redacted per ECF 233</i>
PTX289		EC-AEO-003758124	07/2017	Elmiso July 2017	<i>Redacted per ECF 233</i>
PTX290		N/A	10/15/2020	Plaintiff Elmagin Capital, LLC's First Responses to Defendants' First Set of Interrogatories	Withdrawn by PLAINTIFF
PTX291		N/A	10/15/2020	Plaintiff Elmagin Capital, LLC's Highly Confidential—Attorneys' Eyes Only Second Responses to Defendants' First Set of Interrogatories	Withdrawn by PLAINTIFF
PTX292		N/A	12/30/2020	Plaintiff Elmagin Capital, LLC's Responses to Defendants' Second Set of Interrogatories	Withdrawn by PLAINTIFF
PTX293		N/A	01/08/2021	Plaintiff Elmagin Capital, LLC's Supplemental Responses to Defendants' Second Set of Interrogatories	Withdrawn by PLAINTIFF
PTX294		N/A	04/27/2021	Plaintiff Elmagin Capital, LLC's	Withdrawn by

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Plaintiffs' Trial Exhibits

Trial Exh. No.	Previous Exh. No.	Production No(s).	Date	Description	
				Responses to Defendants' Third Set of Interrogatories	PLAINTIFF
PTX295		EC-AEO-003703720	01/13/2015	Email from Gregory Krajnik re Elamagin NDA	
PTX296		EC-AEO-003712400		Matthew M. Yuros – Elmagin Capital Employment Proposal	
PTX297		EC-AEO-003719852	12/23/2014	Email from Steven Soles re American Power Net Inquiry	
PTX298		EC-AEO-003889059-9062	03/13/2015	Email from Chao Chen re [REDACTED]	
PTX299		N/A	11/11/2020	<i>Excerpts from</i> Defendants' Supplemental Answers and Objections to Plaintiff's First Set of Interrogatories to Defendants	
PTX300		N/A	11/30/2020	<i>Excerpts from</i> Defendants' Amended, Supplemented and Restated Answers and Objections to Plaintiff's First Set of Interrogatories to Defendants	
PTX301		N/A	04/26/2021	<i>Excerpts from</i> Defendants' Responses and Objections to Plaintiff's Second Set of Interrogatories to Defendants	
PTX302		N/A	04/27/2021	<i>Excerpts from</i> Defendants' Amended, Supplemented and Restated Answers and Objections to Plaintiff's First Set of Interrogatories to Defendants	
PTX303		EC-AEO-003593914-916		Slack message between Chen, Yuros and Gates	
PTX304		EC-AEO-003740754-755	08/24/2015	Email from Chao Chen re Berkeley visit	
PTX305		EC-AEO-003786037-038	01/06/2016	Email from Chao Chen re contractor	
PTX306		EC-AEO-003786255	01/11/2016	Email from Chao Chen re asw console	
PTX307		EC-AEO-003578033-8056	03/09/2017	Elmagin Capital – Detailed Look at Elmagin Power Fund's January exposure	

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Plaintiffs' Trial Exhibits

Trial Exh. No.	Previous Exh. No.	Production No(s).	Date	Description	
PTX308		EC-AEO-003727987-7999	09/30/2015	Email from Chao Chen re plans for dayzer	
PTX309		EC-AEO-003748853	04/12/2016	Email from Chao Chen re UTC initial look	
PTX310		EC-AEO-003758985	09/14/2017	Email from Chao Chen re AUM for bidding	
PTX311		EC-AEO-003797905-7908	07/05/2016	Email from Chao Chen re FTR Profit thru 7/5	
PTX312		EC-AEO-003835160-5162	08/14/2017	Email from Chao Chen re Power Trading Risk and Rewards – Invitation to edit	
PTX313		EN-AEO-A-100001	2019	Entergrid Fund I LLC Accounting v2	
PTX314		EN-AEO-A-100002	12/31/2019	Entergrid LLC- 2019 Reports	
PTX315		EN-AEO-A-100003	12/31/2020	Entergrid LLC- Accounting Reports	
PTX316		EN-AEO-A-100004	12/31/2020	Entergrid Fund I LLC Accounting	
PTX317		EN-AEO-A-100005	12/31/2021	Entergrid Fund I LLC Accounting	
PTX318		EN-AEO-A-100006	12/31/2021	Entergrid LLC- Accounting Reports	
PTX319		EN-AEO-A-100007	2/28/2022	Entergrid Fund I LLC Accounting	
PTX320		EN-AEO-A-100008	2/28/2022	Entergrid LLC- Accounting Reports	
PTX321		EC-CONF-000002994	4/11/2016	Services Agreement – TFS Capital and Elmagin Capital LLC	
		Plaintiff Demonstrative		2021-0375 Elmagin Market & FTRs Final	
		Plaintiff Demonstrative		2021-0375 Elmagin Strategy Tree Final	
		Plaintiff Demonstrative		2021-0375 Elmagin Comparison Final	

EXHIBIT B

DX Trial Ex No.	Original Ex No.	Dep Exhibit	Beg Prod No.	End Prod No	Date	Description
DTX-001	X-001	DX-01	EC-AEO-003665462	EC-AEO-003665467	6/21/2017	M. Yuros email to R. Gates re: [REDACTED] strategy, updated with Long Terms
DTX-002	X-002	DX-02	EC-AEO-003591141	EC-AEO-003591175	00/00/0000	Document depicting what looks like a conversation
DTX-003	X-003	DX-03	EC-AEO-003697818	EC-AEO-003697818	11/15/2017	K. Gates email to M. Yuros re: Team Culture
DTX-004	X-004	DX-04	EC-AEO-003889287	EC-AEO-003889301	9/25/2020	Entergrid LLC and Its Affiliated Funds Trading Overview, September 25, 2020
DTX-005	X-005	DX-05	EC-CONF-00000304	EC-CONF-00000311	1/1/2018	Membership Interest Purchase and Release Agreement
DTX-006	X-006	DX-06	N/A	N/A	00/00/0000	Flash Boys: A Wall Street Revolt
DTX-007	X-007	DX-07	N/A	N/A	12/30/2020	PLAINTIFF ELMAGIN CAPITAL, LLC'S RESPONSES TO DEFENDANTS' SECOND SET OF INTERROGATORIES
DTX-008	X-008	DX-08	N/A	N/A	12/30/2020	12/30/2020 Verification of Interrogatory Responses
DTX-009	X-009	DX-09	N/A	N/A	10/15/2020	PLAINTIFF ELMAGIN CAPITAL, LLC'S HIGHLY CONFIDENTIAL – ATTORNEYS' EYES ONLY SECOND RESPONSES TO DEFENDANTS' FIRST SET OF INTERROGATORIES
DTX-010	X-010	DX-10	N/A	N/A	4/9/2021	Notice of 30(b)(6) Deposition
DTX-011	X-011	DX-11	EC-CONF-000002824	EC-CONF-000002838	9/30/2014	Operating Agreement of Elmagin Capital LLC
DTX-012	X-012	DX-12	ED-CONF-000002819	ED-CONF-000002822	2/20/2017	Services Agreement
DTX-013	X-013	DX-13	EC-CONF-000002816	ED-CONF-000002818	6/5/2019	Services Agreement
DTX-014	X-014	DX-14	EC-AEO-003707623	EC-AEO-003707623	6/18/2015	Email Communication
DTX-015	X-015	DX-15	N/A	N/A	3/30/2021	FRCP 26 Expert Report of Craig Pirrong
DTX-016	X-016	DX-16	N/A	N/A	00/00/0000	Ex 1 CV - Curriculum Vitae of Craig Pirrong, Ph.D.
DTX-017	X-017	DX-17	N/A	N/A	00/00/2015 - 00/00/2021	Ex 2 Expert Testimony - Craig Pirrong
DTX-018	X-018	DX-18	N/A	N/A	00/00/0000	Ex 3 Materials Considered
DTX-019	X-019	DX-19				Intentionally Left Blank
DTX-020	X-020	DX-20				Intentionally Left Blank

DX Trial Ex No.	Original Ex No.	Dep Exhibit	Beg Prod No.	End Prod No	Date	Description
DTX-021	X-021	DX-21				Intentionally Left Blank
DTX-022	X-022	DX-22	N/A	N/A	12/8/2010	2010.12.08 Pirrong Affidavit
DX-023	X-023	DX-23	N/A	N/A	2/21/2021	Streetwise Professor » Touching the Third Rail: The Dangers of Electricity Market Design
DX-024	X-024	DX-24	N/A	N/A	2/18/2021	Streetwise Professor » Who Is To Blame for SWP's (and Texas's) Forced Outage_
DTX-025						Intentionally Left Blank
DTX-026						Intentionally Left Blank
DTX-027						Intentionally Left Blank
DTX-028						Intentionally Left Blank
DTX-029						Intentionally Left Blank
DTX-030						Intentionally Left Blank
DTX-031						Intentionally Left Blank
DTX-032						Intentionally Left Blank
DTX-033	X-033	DX-33	N/A	N/A		Zhu LinkedIn page
DTX-034	X-034	PX-01	N/A	N/A	10/18/2020	Notice of Deposition of Defendants Entergrid LLC and Entergrid Fund I LLC.,
DTX-035	X-035	PX-02	N/A	N/A	6/1/2020	Complaint
DTX-036	X-036	PX-03	EC-CONF-00000312	EC-CONF-00000320	1/1/2018	Non-Disclosure and Non-Competition Agreement
DTX-037	X-037	PX-04	EN-AEO-1-012975	EN-AEO-1-012982	1/10/2019	Operating Agreement for Entergrid LLC a Colorado Limited Liability Company
DTX-038	X-038	PX-05	EN-AEO-1-013057	EN-AEO-1-013077	1/10/2019	Operating Agreement for Entergrid LLC a Colorado Limited Liability Company
DTX-039	X-039	PX-06	EN-AEO-1-004057	EN-AEO-1-004086	6/1/2019	Amended and Restated Limited Liability Company Agreement of Entergrid, LLC
DTX-040	X-040	PX-07	EN-AEO-1-006381	EN-AEO-1-006382	1/21/2020	C. Chen letter to J. Tian re: Offer of Employment
DTX-041	X-041	PX-08	EN-AEO-1-006383	EN-AEO-1-006387	1/22/2020	Entergrid, LLC Employee Proprietary Information and Inventions Agreement
DTX-042	X-042	PX-09	EN-AEO-1-008132	EN-AEO-1-008138	6/1/2019	Employment Agreement
DTX-043	X-043	PX-10	EN-CNF-1-010212	EN-CNF-1-010213	8/23/2019	K Petty e-sign document to C. Chen re: Completed DocuSign: Employment Agreement
DTX-044	X-044	PX-11	EN-AEO-1-000138	EN-AEO-1-000139	2/17/2020	C. Chen letter to D. Quint re: Offer of Employment

DX Trial Ex No.	Original Ex No.	Dep Exhibit	Beg Prod No.	End Prod No	Date	Description
DTX-045	X-045	PX-12	EC-AEO-003594839	EC-AEO-003594844	1/8/2016	Consulting Agreement
DTX-046	X-046	PX-13	EN-AEO-1-006667	EN-AEO-1-006706	7/3/2020	Talk with Chao about the state of business
DTX-047	X-047	PX-14	EN-CNF-1-006323	EN-CNF-1-006358	1/1/2020	Employee Handbook - Entergrid, LLC
DTX-048	X-048	PX-15	EN-AEO-1-000210	EN-AEO-1-000214	10/15/0000	Consultant Agreement
DTX-049	X-049	PX-16	EN-AEO-1-011210	EN-AEO-1-011215	12/9/2019	C. Chen email to M. Affournnsit re: Outage predictions
DTX-050	X-050	PX-17	EN-AEO-1-002888	EN-AEO-1-002916	00/00/2019	2019 Tax Forms - Entergrid, LLC
DTX-051	X-051	PX-18	EN-AEO-1-003420	EN-AEO-1-003420	2/6/2019	Amazand Contract Terms
DTX-052	X-052	PX-19	EN-AEO-1-010399	EN-AEO-1-010410	7/26/2019	Proposal for Engineering, LLC
DTX-053	X-053	PX-20	EN-AEO-1-003011	EN-AEO-1-003022	6/3/2019	Entergrid Fund 1 LLC Financial Statements June 3, 2019 - December 31, 2019
DTX-054	X-054	PX-21	N/A	N/A	2/11/2021	Excel Spreadsheet EN-AEO-1-000747
DTX-055	X-055	PX-22	N/A	N/A	2/11/2021	Excel Spreadsheet PX-22_KP0022080--EN-AEO-1-000755-20200531-EntergridFundILLCAccounting_XLS
DTX-056	X-056	PX-23	N/A	N/A	2/11/2021	Excel Spreadsheet, AT-AEO-T-006822-CAISO_Bids_P&L
DTX-057	X-057	PX-24	EN-AEO-1-000299	EN-AEO-1-000304	2/17/2019	Gryphon Strategy
DTX-058	X-058	PX-25	EN-AEO-SC-000707	EN-AEO-SC-000732	8/9/2019	Spot Check Gryphon Backtest (Code Source Redacted)
DTX-059	X-059	PX-26	EN-AEO-1-000532	EN-AEO-1-000534	2/13/2019	Target [REDACTED]
DTX-060	X-060	PX-27	EN-AEO-1-000553	EN-AEO-1-000556	7/4/2019	Universe Construction Methods
DTX-061	X-061	PX-28	EN-AEO-1-000290	EN-AEO-1-000294	6/9/2019	General Historical Strategy
DTX-062	X-062	PX-29	EN-AEO-SC-000612	EN-AEO-SC-000624	6/17/2019	Bids for July 2019 (Code Source Redacted)
DTX-063	X-063	PX-30	EN-AEO-SC-000584	EN-AEO-SC-000590	7/15/2019	August 2019 Bids (Source Code Redacted)
DTX-064	X-064	PX-31	EN-AEO-1-000492	EN-AEO-1-000493	8/12/2019	Pnl vs Clear Prince in Gryphon MISO
DTX-065	X-065	PX-32	EN-AEO-1-000572	EN-AEO-1-000574	5/3/2020	Vail Strategy vs [REDACTED]
DTX-066	X-066	PX-33	N/A	N/A	00/00/0000	Excel Spreadsheet P0033 069--AT-AEO-T-006824-miso_ftr_award_pnl.XLSX
DTX-067	X-067	PX-34	EN-AEO-1-004310	EN-AEO-1-004312	1/30/2019	Manage Production and Development Environments
DTX-068	X-068	PX-35	EN-AEO-1-000080	EN-AEO-1-000085	5/5/2020	Change Vail to Add in [REDACTED]
DTX-069	X-069	PX-36	EN-1-032945	EN-1-032945	12/14/2019	C. Chao email to K. Petty re: Yogi and Hydra

Trial Exhibit List

DX Trial Ex No.	Original Ex No.	Dep Exhibit	Beg Prod No.	End Prod No	Date	Description
DTX-070	X-070	PX-37	EN-1-022686	EN-1-022686	5/7/2020	C. Chao email to Channell, Petty, Jason, Trello, Dov, Jay re: Hydra
DTX-071	X-071	PX-38	EN-1-023114	EN-1-023114	5/18/2020	C. Chao email to Channel, Petty, Jason, Trello, Dov re: Ziggi - Dayzer - Hydra
DTX-072	X-072	PX-39	EN-1-049168	EN-1-049168	5/18/2020	C. Chao email to Channel, Petty Jason, Trello re: Hydra and Ziggi
DTX-073	X-073	PX-40	EN-1-023117	EN-1-023117	5/18/2020	C. Chao email to Channel, Petty, Jason, Trillo re: Hydra and Ziggi
DTX-074	X-074	PX-41	EN-AEO-SC-000598	EN-AEO-SC-000603	3/4/2020	Backtest Uma on [REDACTED] (Source Code Redacted)
DTX-075	X-075	PX-42	EN-1-019206	EN-1-019206	3/4/2020	C. Chao email to Channel, Petty, Jason, Trello re: Dayzer Strategy
DTX-076	X-076	PX-43	EN-AEO-1-004206	EN-AEO-1-004208	5/7/2020	FTR Bidding Process
DTX-077	X-077	PX-44	EN-1-032948	EN-1-032948	12/15/2019	C. Chao email to K. Petty re: Ziggi
DTX-078	X-078	PX-45	EN-AEO-SC-000664	EN-AEO-SC-000669	2/9/2020	Model LMP and Dayzer Outputs (Source Code Redacted)
DTX-079	X-079	PX-46	EN-1-023121	EN-1-023121	5/18/2020	C. Chao email to Channel, Petty, Jason, Trillo re: Ziggi
DTX-080	X-080	PX-47	EN-1-017656	EN-1-017656	12/11/2019	C. Chao email to K. Petty re: Yogi Strategy
DTX-081	X-081	PX-48	EN-AEO-1-004573	EN-AEO-1-004578	5/19/2020	MISO Jun20 Bids
DTX-082	X-082	PX-49	EN-AEO-1-000535	EN-AEO-1-000542	5/13/2020	Trade [REDACTED]
DTX-083	X-083	PX-50	EN-AEO-1-006381	EN-AEO-1-006382	1/21/2020	C. Chen letter to J. Tian re: Offer Letter
DTX-084	X-084	PX-51	EC-AEO-003842115	EC-AEO-003842134	12/5/2017	C. Chen email to R. Gates re: compensation; CC K. Gates
DTX-085	X-085	PX-52	EC-AEO-003766109	EC-AEO-003766113	8/24/2017	C. Chen email to M. Yuros re: Farber; CC Elmagin Team; full email
DTX-086	X-086	PX-53	EC-AEO-003766109	EC-AEO-003766109	8/24/2017	C. Chen email to M. Yuros re: Farber; CC Elmagin Team; one page
DTX-087	X-087	PX-54	EC-AEO-003889202	EC-AEO-003889203	10/24/2016	FTR Universe [REDACTED]
DTX-088	X-088	PX-55	N/A	N/A	6/24/2016	Breck Backtest
DTX-089	X-089	PX-56	EC-AEO-003889063	EC-AEO-003889070	3/26/2015	C. Chen email to analysis@elmagincapital.com re: Simple Backtest

DX Trial Ex No.	Original Ex No.	Dep Exhibit	Beg Prod No.	End Prod No	Date	Description
DTX-090	X-090	PX-57	EC-AEO-003736285	EC-AEO-003736286	2/11/2015	C. Chen email to analysis@elmagincapital.com re: Optimal FTR Bidding - Invitation to Edit
DTX-091	X-091	PX-58	EC-AEO-003819560	EC-AEO-003819563	3/13/2015	H. Yan email to C. Chen re: [REDACTED]
DTX-092	X-092	PX-59	EC-AEO-003846900	EC-AEO-003846901	6/6/2016	C. Chen email to K. Gates, re: MST Question; CC: M. Yuros
DTX-093	X-093	PX-60	EC-AEO-003889072	EC-AEO-003889077	3/27/2015	C. Chen email to analysis@elmagincapital re: Two backtests
DTX-094	X-094	PX-61	EC-AEO-003578170	EC-AEO-003578182	6/24/2016	Explain Breck Profit
DTX-095	X-095	PX-62	EC-AEO-003579755	EC-AEO-003579755	3/27/2015	C. Chen email to K. Gates, R. Gates, M. Yuros re: Secret Stuff
DTX-096	X-096	PX-63	EC-CONF-00002318	EC-CONF-00002318	1/6/2016	K. Petty email to C. Chen re: description of the portfolio valuer
DTX-097	X-097	PX-64	EN-SOURCE-004668	EN-SOURCE-004672	1/4/2016	Calculate FTR Bid Performance
DTX-098	X-098	PX-65	EN-AEO-1-067754	EN-AEO-1-067755	3/6/2019	K. Petty email to C. Chen re: Happy New Year
DTX-099	X-099	PX-66	EN-AEO-1-068002	EN-AEO-1-068002	3/16/2020	Y. Zhang email to C. Chen re: FTR and UTC Markets Volume Comparision
DTX-100	X-100	PX-67	EN-AEO-1-068003	EN-AEO-1-068004	00/00/0000	Profitability between PJM, FTR and UTC
DTX-101	X-101	PX-68	EN-AEO-1-067985	EN-AEO-1-067985	7/10/2020	W. Luo email to bigchao@gmail.com re: PJM FTR Available Notes; CC Y. Zhang
DTX-102	X-102	PX-69	EN- AEO -1- 067662	EN- AEO -1- 067662	4/6/2019	C. Chang email to K. Petty re: Agreements
DTX-103	X-103	PX-70	EN- AEO -1- 070295	EN- AEO -1- 070295	9/27/2018	T. Graham email to C. Chen re: Mexico
DTX-104	X-104	PX-71	N/A	N/A	3/30/2021	EXPERT REPORT OF CRISTIAN ZARCU MARCH 30, 2021
DTX-105	X-105	PX-72	N/A	N/A	4/16/2021	REBUTTAL EXPERT REPORT OF CRISTIAN ZARCU APRIL 16, 2021
DTX-106	X-106	PX-73	N/A	N/A	11/27/2020	UNDERTAKING OF EXPERTS, CONSULTANTS, OR THIRD PARTIES REGARDING PROTECTIVE ORDER
DTX-107	X-107	PX-74	N/A	N/A	4/15/2021	TradeDynamix - Compliance, TradeDynamix Trading
DTX-108	X-108	PX-75	N/A	N/A	9/18/2020	STIPULATED PROTECTIVE ORDER

DX Trial Ex No.	Original Ex No.	Dep Exhibit	Beg Prod No.	End Prod No	Date	Description
DTX-109	X-109	PX-76	N/A	N/A	4/13/2021	WATS Equities Electronic Trading -Wells Fargo Corporate & Investment Banking
DTX-110	X-110	PX-77	N/A	N/A	00/00/2009	Quantitative Trading - How to Build Your Own Algorithmic Trading Business
DTX-111	X-111	PX-78	EC -AEO-003783062	EC -AEO-003783064	12/2/2015	C. Chen email to Y. Tang re: goals
DTX-112	X-112	PX-79	EC-AEO-003579587	EC-AEO-003579591	1/1/2016	Y. Tang email to C. Chen, K. Gates, R. Gates, M. Yuros and W. Blackson re: Elmagin Capital LLC Mail - Breck strategy recommendations for Feb 2016
DTX-113	X-113	PX-80	EC -AEO-003783040	EC -AEO-003783042	12/2/2015	M. Yuros email to R. Gates, C. Chen , and K. Gates re: [REDACTED]
DTX-114	X-114	PX-81	EC -AEO-003889368	EC -AEO-003889369	4/5/2016	Breck on Annual Auction
DTX-115	X-115	PX-82	EC -AEO-003889344	EC -AEO-003889354	6/24/2016	Breck Backtest
DTX-116	X-116	PX-83	EN- AEO -1- 067648	EN- AEO -1- 067650	4/11/2019	C. Chen email to K. Petty re: waneka project
DTX-117	X-117	PX-84	N/A	N/A	1/19/2016	Notes - Machines and To do list
DTX-118	X-118	PX-85	N/A	N/A	3/23/2021	Principal - Annual Recertification FAQs
DTX-119	X-119	PX-86	EN- AEO- 1- 006727	EN- AEO -1- 006760	00/00/2020	To Do - Entergrid:
DTX-120	X-120	PX-87	N/A	N/A	4/21/2021	Excel Spreadsheet P0087 EN-AEO-073433-2020.12.31 Entergrid LLC- Accounting Reports (2).XLSX
DTX-121	X-121	PX-88	N/A	N/A	4/21/2021	Excel Spreadsheet P0088 EN-AEO-073438-2020.12.31 Entergrid Fund I Accounting-2020.12.31- Entergrid Fund I LLC Accounting.XLSX
DTX-122	X-122	PX-89	N/A	N/A	3/30/2021	Addendum of Supplemental Materials to Mason Expert Report
DTX-123	X-123	PX-90	N/A	N/A	3/30/2021	Expert Report of W. Anthony Mason
DTX-124	X-124	PX-91	N/A	N/A	3/30/2021	Expert Report of W Anthony Mason with blue banner
DTX-125	X-125	PX-92	N/A	N/A	00/00/0000	No Python interpreter configured for the project

DX Trial Ex No.	Original Ex No.	Dep Exhibit	Beg Prod No.	End Prod No	Date	Description
DTX-126	X-126	PX-93	N/A	N/A	00/00/0000	Undertaking of Experts, consultants, or Third Parties Regarding Protective Order
DTX-127	X-127	PX-94	EN-AEO-073462	EN-AEO-073500	00/00/0000	Handwritten Notes,
DTX-128	X-128	PX-95	EC-SOURCE-003075	EC-SOURCE-003079	00/00/0000	Email Chain September 30, 2016 - October 5, 2016
DTX-129	X-129	PX-96	N/A	N/A	00/00/0000	LinkedIn profile of Jay Tian
DTX-130	X-130	PX-97	EN -1-024275	EN -1-024275	6/15/2020	C. Chen email to J. Tian re: not running Hydra
DTX-131	X-131	PX-98	EN-AEO-1-004334	EN-AEO-1-004337	7/15/2020	MISO Aug20 Bids
DTX-132	X-132	PX-99	EN -1-021256	EN -1-021256	4/9/2020	C. Chen email to J. Tian re: you still need to run [REDACTED] [REDACTED]. just reminder
DTX-133	X-133	None	N/A	N/A	2/11/2021	Deposition Transcript 30(b)(6) Petty, Karl Ph.D
DTX-134	X-134	None	N/A	N/A	2/15/2021	Deposition Transcript 30(b)(6) Chen, Chao Dr
DTX-135	X-135	None	N/A	N/A	2/25/2021	Deposition Transcript Chen, Chao, Dr
DTX-136	X-136	None	N/A	N/A	3/23/2021	Deposition Transcript Yuros, Matthew
DTX-137	X-137	None	N/A	N/A	3/24/2021	Deposition Transcript Gates, Richard
DTX-138	X-138	None	N/A	N/A	3/25/2021	Deposition Transcript Gates, Kevin
DTX-139	X-139	None	N/A	N/A	4/9/2021	Deposition Transcript 30(b)(6) Gates, Kevin & Richard
DTX-140	X-140	None	N/A	N/A	4/12/2021	Deposition Transcript Pirrong, Craig
DTX-141	X-141	None	N/A	N/A	4/13/2021	Deposition Transcript Chiang, Roger
DTX-142	X-142	None	N/A	N/A	4/14/2021	Deposition Transcript Zhu, Guidong
DTX-143	X-143	None	N/A	N/A	4/19/2021	Deposition Transcript Zarcu, Cristian
DTX-144	X-144	None	N/A	N/A	4/21/2021	Deposition Transcript Petty, Karl Ph.D
DTX-145	X-145	None	N/A	N/A	4/26/2021	Deposition Transcript Mason, W. Anthony
DTX-146	X-146	None	N/A	N/A	4/27/2021	Deposition Transcript Tian, Huifu (Jay)
DTX-147	X-147	None	N/A	N/A	3/30/2021	FRCP 26 Expert Report of Dr Craig Pirrong a March 30 2021
DTX-148	X-148	None	N/A	N/A	3/30/2021	FRCP 26 Expert Report of Dr Craig Pirrong Exhibits 1 - 3 March 30 2021
DTX-149	X-149	None	N/A	N/A	4/16/2021	2021.04.16 Rebuttal Expert Report of M. Garibotti Confidential AEO
DTX-150	X-150		N/A	N/A	5/11/2021	Declaration of Karl Petty
DTX-151	X-151		N/A	N/A	9/8/2020	Plaintiff's Rule 26(a)(1) Initial Disclosures

DX Trial Ex No.	Original Ex No.	Dep Exhibit	Beg Prod No.	End Prod No	Date	Description
DTX-152	X-152		N/A	N/A	3/29/2021	Investopedia Technical Analysis Basic Education Backtesting
DTX-153	X-153		N/A	N/A	5/11/2021	Market Making and Mean Reversion
DTX-154	X-154		N/A	N/A	12/16/2020	Autoregressive; Jason Fernado - Technical Analysis Advanced Technical Analysis Concepts
DTX-155	X-155		N/A	N/A	6/2/2014	Forecasting spot electricity prices with time series models
DTX-156	X-156		N/A	N/A	00/00/0000	Discrete Mathematics by Kenneth A. Ross and Charles R. B. Wright
DTX-157	X-157		N/A	N/A	1/1/1985	On the History of the [REDACTED] Problem by R. L. Graham and Pavol Hell
DTX-158	X-158		N/A	N/A	00/00/2009	Introduction to Algorithms
DTX-159	X-159		N/A	N/A	2/24/1998	Hierarchical Structure in Financial Markets
DTX-160	X-160		N/A	N/A	11/1/2013	Optimized FTR Portfolio Construction Based on the Identification of Congested Network Elements, IEEE Transactions on Power Systems, Vol. 28, No. 4, November 2013
DTX-161	X-161		N/A	N/A	12/6/2016	PJM Generation Contingency Analysis
DTX-162	X-162		N/A	N/A	3/27/2021	PJM.com performance, PJM Coronavirus (COVIC-19) Information, PJM Glossary
DTX-163	X-163		N/A	N/A	2/8/2017	[REDACTED]: The good, the bad, and the ugly - The DO Loop BLOGS
DTX-164	X-164		N/A	N/A	3/27/2021	The Most Rewarding Portfolio Construction Techniques: An Unbiased Evaluation, Sep. 24, 2013, AGG, DJCI, GLD...
DTX-165	X-165		N/A	N/A	3/29/2021	Cambridge Energy Solutions www.ces-us.com webpage
DTX-166	X-166		N/A	N/A	3/27/2021	PJM Glossary
DTX-167	X-167		N/A	N/A	5/11/2021	Search projects PYPOWER 5.1.15 Solves power flow and optimal power flow problems

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DX Trial Ex No.	Original Ex No.	Dep Exhibit	Beg Prod No.	End Prod No	Date	Description
DTX-168	X-168		N/A	N/A	4/1/2020	Energy Primer A Handbook for Energy Market Basics, Staff Report Federal Energy Regulatory Commission April 2020
DTX-169	X-169		N/A	N/A	3/16/2020	PowerWorld website; The Visual Approach to Electric Power Systems
DTX-170	X-170		N/A	N/A	1/1/2018	Non-Disclosure and Non-Competition Agreement between Richard Gates, Kevin Gates, Chao Chen and Elmagin Capital LLC
DTX-171	X-171		N/A	N/A	1/1/2018	Membership Interest Purchase and Release Agreement between Richard Gates, Kevin Gates, Chao Chen and Elmagin Capital LLC
DTX-172	X-172		N/A	N/A	1/8/2016	Consulting Agreement between Elmagin Capital LLC and Karl Petty
DTX-173	X-173		EC-AEO-003746851	EC-AEO-003746855	3/7/2016	C. Chen email to K. Gates, R. Gates Re Compensation
DTX-174	X-174		EC-AEO-003842093	EC-AEO-003842098	12/5/2017	K. Gates email to C. Chen, R. Gates Re Compensation
DTX-175	X-175		N/A	N/A	10/15/2020	Plt Elmagin Highly Confidential - AEO Second Responses to Dft First Set of Interrogatories
DTX-176	X-176		EC-AEO-003579708	EC-AEO-003579711	2/9/2015	C. Chen email to B. Dundar, H. Yan, analysis@elmagincapital.com Re Find [REDACTED]
DTX-177	X-177		EC-AEO-003707623	EC-AEO-003707623	1/18/2015	C. Chen email to analysis@elmagincapital.com Re [REDACTED]
DTX-178	X-178		EC-AEO-003889202	EC-AEO-003889203	10/24/2016	FTR Universe From [REDACTED] - Chao Chen
DTX-179	X-179		N/A	N/A	12/30/2020	Plt Elmagin Responses to Dft Second Set of Interrogatories
DTX-180	X-180		N/A	N/A	4/27/2021	Plt Elmagin Responses to Dft Third Set of Interrogatories
DTX-181	X-181		EC-AEO-003579630	EC-AEO-003579630	3/27/2015	C. Chen email to K. Gates, R. Gates, M. Yuros Re alpha and backtest framework. Breck
DTX-182	X-182		EC-AEO-003727145	EC-AEO-003727145	9/18/2015	M. Yuros email to K. Gates Re Update to monthly perf spreadsheet; Breck Strategy Performance
DTX-183	X-183		N/A	N/A	00/00/0000	Cumulative Profit; Profit by Month Chart

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DX Trial Ex No.	Original Ex No.	Dep Exhibit	Beg Prod No.	End Prod No	Date	Description
DTX-184	X-184		N/A	N/A	00/00/0000	CV of Craig Pirrong, Ph.D.
DTX-185	X-185		N/A	N/A	5/25/2021	Declaration of Chao Chen
DTX-186	X-186		N/A	N/A	1/29/2021	Backtesting by James Chen
DTX-187	X-187		N/A	N/A	6/5/2011	Market Making and Mean Reversion
DTX-188	X-188		N/A	N/A	5/25/2021	Declaration of Karl Petty
DTX-189	X-189		N/A	N/A	05/00/2005	Forecasting spot electricity prices with time series models
DTX-190	X-190		N/A	N/A	00/00/1985	Discrete Mathematics Kenneth Ross and Charles Wright
DTX-191	X-191		N/A	N/A	7/1/2017	How Do Electricity Prices Reflect Transmission Congestion? by Robert Sinclair
DTX-192	X-192		N/A	N/A	1/29/2018	FTR Trading Fundamentals & Tools, Assef Zobian, Cambridge Energy Solutions, EUCI Financial Transmission Rights Conference Pre Conference Workshop, January 29, 2018, Washington, DC
DTX-193	X-193		N/A	N/A	5/25/2021	Blogs
DTX-194	X-194		N/A	N/A	5/25/2021	Wikipedia - Winsorizing
DTX-195	X-195		N/A	N/A	9/24/2013	The Most Rewarding Portfolio Construction Techniques: An Unbiased Evaluation
DTX-196	X-196		N/A	N/A	3/22/2021	Pypower 5.1.15 Project Description
DTX-197	X-197		N/A	N/A	4/00/2020	Energy Primer - A Handbook for Energy Market Basics
DTX-198	X-198		N/A	N/A	3/16/2021	The visual approach to electric power systems
DTX-199	X-199		EC-AEO-003707623	EC-AEO-003707623	6/18/2015	C. Chen email to Analysis@elmagincapital.com Re [REDACTED]
DTX-200	X-200		EC-AEO-003676873	EC-AEO-003676875	1/4/2016	Y. Tang email to K. Gates Re Breck strategy recommendations for February 2016
DTX-201	X-201		EC-AEO-003580313	EC-AEO-003580321	00/00/0000	Message chain
DTX-202	X-202		EC-AEO-003754987	EC-AEO-003754988	2/9/2017	Y. Tang email to Elmagin Team Re Breck Annuals Update
DTX-203	X-203		EC-AEO-003642081	EC-AEO-003642083	4/5/2017	Y. Tang email to Elmagin Team Re Breck multiperiod in MISO

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DX Trial Ex No.	Original Ex No.	Dep Exhibit	Beg Prod No.	End Prod No	Date	Description
DTX-204	X-204					Intentionally Left Blank
DTX-204A	X-204A		N/A	N/A	5/11/2021	Declaration of Chao Chen
DTX-205	X-205		N/A	N/A	12/14/2018	Adams - Identifying and Treating Outliers in Finance
DTX-206	X-206		N/A	N/A	8/20/2015	Agency Algos and You: A Conversation with Quantitative Brokers Trading Technologies
DTX-207	X-207		N/A	N/A	9/24/2013	Allen Seeking Alpha The Most Rewarding Portfolio Construction Techniques: An Unbiased Evaluation
DTX-208	X-208		N/A	N/A	12/16/2020	Autoregressive (Definition)
DTX-209	X-209		N/A	N/A	12/28/2020	Average Daily Trading Volume - ADTV Definition
DTX-210	X-210		N/A	N/A	1/29/2021	Backtesting (Definition)
DTX-211	X-211		N/A	N/A	3/7/2020	Basics of Algorithmic : Trading Concepts and Examples
DTX-212	X-212		N/A	N/A	3/18/2021	Bid-Ask Spread (Definition)
DTX-213	X-213		N/A	N/A	3/29/2021	CES - Cambridge Energy Solutions - Dayzer
DTX-214	X-214		N/A	N/A	3/22/2021	CES - Cambridge Energy Solutions - DAYZER
DTX-215	X-215		N/A	N/A	06/05/2011 - 09/09/2011	Chakraborty / Kearns - Market Making and Mean Reversion
DTX-216	X-216		N/A	N/A	00/00/2009	Excerpts from Quantitative Trading How to Build Your Own Algorithmic Trading Business , Chan
DTX-217	X-217		N/A	N/A	3/29/2021	CME Group - Understanding Basics of the Power Market
DTX-218	X-218		N/A	N/A	00/00/2009	Cormen, Leiserson, Rivest and Stein - Excerpts from Introduction to Algorithms
DTX-219	X-219		N/A	N/A	3/27/2021	Corporate Finance Institute - What is Algorithmic Trading
DTX-220	X-220		N/A	N/A	3/29/2021	Corporate Finance Institute - Volume Weighted Adjusted Price (VWAP)- Definition, How to Calculate
DTX-221	X-221		N/A	N/A	00/00/2004	Forecasting electricity spot-prices using linear univariate time-series models, Cualesma, Hlouskova, Kossmeier, Obersteiner
DTX-222	X-222		N/A	N/A	00/00/2016	Cummings - Make The Trade

DX Trial Ex No.	Original Ex No.	Dep Exhibit	Beg Prod No.	End Prod No	Date	Description
DTX-223	X-223		N/A	N/A	03/00/2007	Application of Robust Statistics to Asset Allocations Models
DTX-224	X-224		N/A	N/A	3/27/2021	Decode: Breaking down How an Actual Trading Algorithm Works By Bradley Hope
DTX-225	X-225		N/A	N/A	07/00/2012	Efficient Algorithms for Computing Risk Parity Portfolio-Weights
DTX-226	X-226		N/A	N/A	3/10/2021	Elmagin Capital LLC Web page
DTX-227	X-227		N/A	N/A	10/16/2017	Stock market return predictability: Does network topology matter?
DTX-228	X-228		N/A	N/A	3/27/2021	Entergrid LLC - The Entergrid Team web page intro
DTX-229	X-229		N/A	N/A	3/10/2021	Algorithmic Energy Markets Call to Action
DTX-230	X-230		N/A	N/A	12/7/2020	Exploring the Exponentially Weighted Moving Average
DTX-231	X-231		N/A	N/A	10/23/2020	FERC - Electric Power Markets-National Overview
DTX-232	X-232		N/A	N/A	04/00/2020	FERC Energy Primer A Handbook for Energy Market Basics 2020
DTX-233	X-233		N/A	N/A	01/00/1985	Graham - On the History of the [REDACTED] Problem
DTX-234	X-234		N/A	N/A	00/00/1999	Grinold - Active Portfolio Mgmt.pdf
DTX-235	X-235		N/A	N/A	5/13/2013	Hasbrouck Saar 2013 Journal of Financial Markets - Low-latency trading
DTX-236	X-236		N/A	N/A	12/16/2015	Haugh et al 2015 Risk Journals - A generalized risk budgeting approach to portfolio construction
DTX-237	X-237		N/A	N/A	3/27/2021	IBKR Trading API Solutions Interactive Brokers LLC
DTX-238	X-238		N/A	N/A	3/29/2021	ISO-NE - FAQs Financial Transmission Rights (FTRs).
DTX-239	X-239		N/A	N/A	09/14/2020 - 09/21/2020	ISO-NE - Financial Transmission Rights Introduction to Wholesale Electricity Markets (WEM 101)
DTX-240	X-240		N/A	N/A	00/00/2008	ISO-NE - Power System and LMP Fundamentals
DTX-241	X-241		N/A	N/A	00/00/2013	JPM-CLARKE - Risk Parity, Maximum diversification, and [REDACTED]: An Analytical Perspective By Clarke, DeSilva, Thorley
DTX-242	X-242		N/A	N/A	00/00/2003	Kissell - Optimal Trading Strategies.

DX Trial Ex No.	Original Ex No.	Dep Exhibit	Beg Prod No.	End Prod No	Date	Description
DTX-243	X-243		N/A	N/A	3/19/2021	Leverage Definition
DTX-244	X-244		N/A	N/A	00/00/1999	Mantegna 1999 European Phys J B - Hierarchical structure in financial markets
DTX-245	X-245		N/A	N/A	00/00/1952	Markovitz 1952 Journal of Finance - Portfolio Selection
DTX-246	X-246		N/A	N/A	3/29/2021	[REDACTED]: Definition, Examples, Prim's Algorithm - Statistics How To
DTX-247	X-247		N/A	N/A	3/27/2021	MISO - About MISO
DTX-248	X-248		N/A	N/A	11/00/2013	Optimized-FTR-Portfolio-Construction-Based-on-the-Identification-of-Congested-Network-Elements
DTX-249	X-249		N/A	N/A	00/00/2011	Perez - The Speed Traders
DTX-250	X-250		N/A	N/A	1/27/2021	PJM - Manual 06
DTX-251	X-251		N/A	N/A	5/24/2017	PJM - Market Settlements - Advanced FTR/ARR Module
DTX-252	X-252		N/A	N/A	3/27/2021	PJM - PJM Glossary
DTX-253	X-253		N/A	N/A	6/18/2020	PJM - Protection Against Congestion Charges
DTX-254	X-254		N/A	N/A	3/27/2021	PJM - Who We Are
DTX-255	X-255		N/A	N/A	04/00/2020	PJM FTR Market Review.pdf
DTX-256	X-256		N/A	N/A	7/1/2017	Potomac Economics - How Do Electricity Prices Reflect Transmission Congestion
DTX-257	X-257		N/A	N/A	12/28/2020	Proprietary Trading Definition
DTX-258	X-258		N/A	N/A	5/14/2015	Sevinsky - Portfolion selection based on hierarchical structure of its components
DTX-259	X-259		N/A	N/A	04/00/2018	Sherwin, Evan D.; Henrion, Max; Azevedo, Inês M. L. -- Publisher Correction- Estimation of the year-on-year volatility and the unppredictability of the United States energy system
DTX-260	X-260		N/A	N/A	12/19/2019	Shimizu - Construction inverse factor volatility portfolios: A risk-based asset allocation for factor investing
DTX-261	X-261		N/A	N/A	00/00/2020	Singh - FTRs – A Good Virtual Trading Financial Instrument (Power)

DX Trial Ex No.	Original Ex No.	Dep Exhibit	Beg Prod No.	End Prod No	Date	Description
DTX-262	X-262		N/A	N/A	12/7/2018	This Blog is Systematic Portfolio construction through handcrafting: The method.
DTX-263	X-263		N/A	N/A	4/4/2003	Hogan - Transmission Market Design
DTX-264	X-264		N/A	N/A	11/20/2020	Trimmed Mean Definition.
DTX-265	X-265		N/A	N/A	10/22/2020	U.S. Energy Information Administration (EIA) - Electricity Explained How Electricity is Delivered to Consumers
DTX-266	X-266		N/A	N/A	12/6/2019	Using Historical Volatility To Gauge Future Risk.pdf
DTX-267	X-267		N/A	N/A	5/10/2005	Weron, Misiorek - Forecasting Spot Electricity Prices with Time Series Models
DTX-268	X-268		N/A	N/A	2/8/2017	██████████ The good, the bad, and the ugly - The DO Loop.pdf
DTX-269	X-269		N/A	N/A	1/29/2018	Zobian - EUCI 2018 Presentation FTR Trading Fundamentals & Tools
DTX-270	X-270		N/A	N/A	00/00/0000	miso_aug19_offpeak.csv
DTX-271	X-271		N/A	N/A	00/00/0000	miso_aug19_onpeak.csv
DTX-272	X-272		N/A	N/A	00/00/0000	miso_jul19_offpeak.csv
DTX-273	X-273		N/A	N/A	00/00/0000	miso_jul19_onpeak.csv
DTX-274	X-274		N/A	N/A	00/00/0000	miso_jun19_offpeak.csv
DTX-275	X-275		N/A	N/A	00/00/0000	miso_jun19_onpeak.csv
DTX-276	X-276		N/A	N/A	00/00/0000	pjmiso_aug19_h24.csv
DTX-277	X-277		N/A	N/A	00/00/0000	pjmiso_aug19_offpeak.csv
DTX-278	X-278		N/A	N/A	00/00/0000	pjmiso_aug19_onpeak.csv
DTX-279	X-279		N/A	N/A	00/00/0000	pjmiso_jul19_h24.csv
DTX-280	X-280		N/A	N/A	00/00/0000	pjmiso_jul19_offpeak.csv
DTX-281	X-281		N/A	N/A	00/00/0000	pjmiso_jul19_onpeak.csv
DTX-282	X-282		N/A	N/A	00/00/0000	pjmiso_jun19_h24.csv
DTX-283	X-283		N/A	N/A	00/00/0000	pjmiso_jun19_offpeak.csv
DTX-284	X-284		N/A	N/A	00/00/0000	pjmiso_jun19_onpeak.csv
DTX-285	X-285		N/A	N/A	10/11/1950	1951 Nash - Non-Cooperative Games
DTX-286	X-286		N/A	N/A	9/30/1964	1965 Bickel - On Some Robust Estimates of Location
DTX-287	X-287		N/A	N/A	3/1/1997	1997 Mitchell - Machine Learning

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DX Trial Ex No.	Original Ex No.	Dep Exhibit	Beg Prod No.	End Prod No	Date	Description
DTX-288	X-288		N/A	N/A	04/00/2001	1999 Friedman - Greedy Function Approximation A Gradient Boosting Machine
DTX-289	X-289		N/A	N/A	06/24/2002 - 06/29/2002	2002 Liu, Gross - Effectiveness of the Distribution Factor Approximations Used in Congestion Modeling
DTX-290	X-290		N/A	N/A	00/00/2003	2003 Ma, Sun, Rosenwald, Ou - Advanced Financial Transmission Rights in the PJM Market
DTX-291	X-291		N/A	N/A	6/27/2003	2004 Lui, Gross - Role of Distribution Factors in Congestion Revenue Rights Applications.pdf
DTX-292	X-292		N/A	N/A	5/26/2005	2005 Kumar, Srivastava, Singh - Congestion Management in Competitive Power Market A Bibliographic Survey
DTX-293	X-293		N/A	N/A	11/00/2005	2005 Cheng, Overbye - P-DF-Based Power System Equivalents
DTX-294	X-294		N/A	N/A	7/12/2004	2005 Li, Shahidehpour - Risk-Constrained FTR Bidding Strategy in Transmission Markets
DTX-295	X-295		N/A	N/A	1/30/2007	2007 Orfanogianni, Gross - A General Formulation for LMP Evaluation
DTX-296	X-296		N/A	N/A	8/30/2006	2007 Guller, Gross, Liu - Generalized Line Outage Distribution Factors
DTX-297	X-297		N/A	N/A	7/2/2007	2007 Fisher, O'Neill, Ferris - Optimal Transmission Switching
DTX-298	X-298		N/A	N/A	12/00/2006	2007 Hu, Ralph - Using EPECs to Model Bilevel Games in Restructured Electricity Markets with Locational Prices
DTX-299	X-299		N/A	N/A	2/17/2009	2009 Parmeshwaran, Muthuraman - FTR-option formulation and pricing
DTX-300	X-300		N/A	N/A	8/21/2010	2011 Davis, Overby Multiple Element Contingency Screening
DTX-301	X-301		N/A	N/A	00/00/2011	2011 Apostolopoulou - Optimized FTR Portfolio Construction The Speculators Problem

Trial Exhibit List

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DX Trial Ex No.	Original Ex No.	Dep Exhibit	Beg Prod No.	End Prod No	Date	Description
DTX-302	X-302		N/A	N/A	3/2/2013	2013 Apostolopoulou, Gross, Guler - Optimized FTR Portfolio Construction Based on the Identification of Congested Network Elements
DTX-303	X-303		N/A	N/A	06/03/2013 - 06/24/2013	2013 Lo, Zhou - The Financial Risk of Lossless Shift Factor in the ISO Energy Market and its Resolution
DTX-304	X-304		N/A	N/A	00/00/2013	2013 Rosellon, Kristiansen - Book Financial Transmission Rights Analysis, Experiences and Prospects
DTX-305	X-305		N/A	N/A	3/21/2014	2014 Patton - Alternatives for Addressing the Interface Pricing Flaw
DTX-306	X-306		N/A	N/A	00/00/2014	2014 Mack - Energy Trading and Risk Management A Practical Approach to Hedging, Trading, and Portfolio Diversification
DTX-307	X-307		N/A	N/A	00/00/2015	2015 Zhang, Fan- Evaluation of Interface Pricing in Electricity Markets
DTX-308	X-308		N/A	N/A	6/6/2018	2018 Chmielewski - FTR Forfeitures
DTX-309	X-309		N/A	N/A	00/00/2019	2019 Buch, Andrzejak - Learning-Based Recursive Aggregation of Abstract Syntax Trees for Code Clone Detection
DTX-310	X-310		N/A	N/A	00/00/2020	2020 Conlan - Algorithmic Trading with Python Quantitative Methods and Strategy Development.
DTX-311	X-311		N/A	N/A	00/00/0000	DAYZER_v125_brochure
DTX-312 - 335						Intentionally Left Blank